THE MEDICAL JOURNAL OF AUSTRALIA

VOL. I.—35TH YEAR. SYDNEY, SATURDAY, FEBRUARY 14, 1948. No. 7.

Table of Contents.

[The Whole of the Literary Matter in THE MEDICAL JOURNAL OF AUSTRALIA is Copyright.]

ORIGINAL ARTICLES— Page.
An Address, by Norman Sherwood 185
The Control of Body Water Balance, by Chandler Brooks 187
Some Problems Concerning the Recruitment and Training of Surgeons and the Practice of Surgery in Queensland, by E. S. Meyers 193
Some Observations on Alloxan Diabetes in the Rabbit, by Anita Brown, A. B. Corkill, P. Fantl and J. F. Nelson 197
The Guterman Reaction in Clinical Practice, by E. M. A. Day and L. J. Cains 199

REVIEWS—
Progress in Medicine 201
Inherited Diseases in Animals and Human Diseases 201
Cancer 202
Physical Treatment of Injuries of the Brain 202

LEADING ARTICLES—
Public Health in Western Australia 203

CURRENT COMMENT—
Kala-Azar 204
The Adrenal Cortex 204

ABSTRACTS FROM MEDICAL LITERATURE—
Dermatology 206
Urology 207

BRITISH MEDICAL ASSOCIATION NEWS—
Annual Meeting 208
Scientific 216
Notice 217

MEDICAL SOCIETIES—
Medical Sciences Club of South Australia 217

POST-GRADUATE WORK— Page.
The Post-Graduate Committee in Medicine in the University of Sydney 217
The Melbourne Permanent Post-Graduate Committee 217

NAVAL, MILITARY AND AIR FORCE—
Appointments 218

SPECIAL CORRESPONDENCE—
Canada Letter 218

CORRESPONDENCE—
A Modified Drinker Respirator for Newborn Infants 218
New Treatment of Rheumatoid Arthritis 219

MEDICAL PRIZES—
Prize of the International Association for the Prevention of Blindness 219

OBITUARY—
John Daniel Herlihy 219
Aubrey Phillip Gunning 220

NOMINATIONS AND ELECTIONS 220

THE FEDERAL MEDICAL WAR RELIEF FUND 220

MEDICAL APPOINTMENTS 220

BOOKS RECEIVED 220

DIARY FOR THE MONTH 220

MEDICAL APPOINTMENTS: IMPORTANT NOTICE .. 220

EDITORIAL NOTICES 220

An Address.[1]

By NORMAN SHERWOOD,
President, Queensland Branch of the British Medical Association.

I AM indeed conscious of the honour you have conferred on me in electing me your president. It will not be easy to follow in the footsteps of my illustrious predecessors, who have set a very high standard and brought honour to the Queensland Branch of the British Medical Association. Moreover, the year ahead of us promises to be full of difficult problems, the solution of which will necessitate the making of momentous decisions. Much wisdom and tact will be required. I shall do my best. The wholehearted support of every member of the profession has never been needed so much.

Some weeks ago I was wondering on what subject I could address you tonight. I was at North Tambourine. It was a clear, crisp, sunny day, and as I stood looking over the tree-topped hills and valleys stretching away to Moreton Bay and beyond to Stradbroke Island, and the Pacific, the thought occurred to me that my freedom to stand there and admire the magnificent panorama was possible only because men of vision and indomitable courage filled with an insatiable curiosity and desire to solve the mysteries of the world, ventured forth in little ships and discovered new lands, many of which now form the great Commonwealth of British Nations. Pioneers followed in their trail and settled in this great country of ours, bringing with them that wonderful spirit of British democracy, with the freedom gained at Runnymede when John signed the *Magna Charta*. Here is a heritage which is priceless and must be preserved at all costs. Then the thought came to my mind that the medical profession has an equally precious heritage. It has been moulded on the same lines by the same pioneer stock, founded on principles and ethics established by the great Father of Medicine, Hippocrates, over 2000 years ago.

The high moral and ethical plane on which medical practice is set has placed a tremendous responsibility on the shoulders of every medical practitioner and has at the same time engendered a feeling of confidence and trust in him by patients, thus founding the great doctor-patient relationship, which is the essential basis of present-day practice.

The family practitioner service, to my mind, is and always will be the finest type of medical practice. The general practitioner has a hard and exacting life. He is at everyone's beck and call. His time is never his own, and he cannot rely even on his night's rest, but the life has its rewards. The very nature of the service which he renders brings him into intimate contact with his patients. The treatment of their illness is but a small part of his job. He sees life in stark reality. The vicissitudes of family life in the home, the happiness, the quarrels, wealth, poverty, squalor, hopes, aspirations, fears, disappointment, disaster, all these and more are like an open book in the home, so that those who run may read, and the family doctor who is true to his heritage must wrestle with these family problems and try to find their solution. He is the trusted guide, philosopher and friend, in whom his patients put their whole trust and confidence, and to whom they look for advice and help.

We all know that this is a true picture of the present patient-doctor relationship. It is built on trust, the patient knowing that he is dealing with a man of integrity who is bound to secrecy, and with him his secret is safe. Such a relationship is possible because it is based on a contract between two parties only.

Freedom to practise where, and how, and as one wishes, tends to keep medical practice on a high plane of efficiency. There is healthy competition and rivalry with one's colleagues, there is an incentive to work hard and long hours

[1] Read at the annual meeting of the Queensland Branch of the British Medical Association on December 12, 1947.

for a just reward—I do not necessarily mean monetary reward, because it is my firm belief that the great majority of medical men find their greatest reward in the knowledge of a job well done, a service faithfully rendered, and most of all, in the gratitude, affection and loyalty of their patients. The incentive of rendering a service to the community, rich and poor alike, with or without pecuniary gain, is to my mind the greatest of all incentives. Unfortunately we live in a world of bureaucratic controls, we are frustrated by regulations and high taxation, the effect of which can only make one believe that they are purposely designed to kill human endeavour and incentive and make us all pawns of the State. Let us not allow our freedom, our priceless heritage, to be taken from us.

Modern medicine has become much more exact and complex. Scientific research has brought about great improvements in diagnostic methods and treatment. Pathological tests and X-ray investigations have in many instances made diagnosis and treatment more certain. The discovery of the antibiotics—sulphonamide drugs and penicillin—have made treatment more specific. It has become necessary to establish pathological laboratories and X-ray and radium clinics for diagnosis and treatment. The equipment for these is expensive. Consequently the investigation and treatment entailed in modern medicine are expensive, but when compared with rising costs in all other living conditions, the expense is relatively not so great. Medical fees have not increased greatly, if at all, over many years. The basic consultation fees have not altered in a generation.

The British Medical Association has often been called the greatest and most powerful trade union in the world. It is a trade union, but not in the present commonly accepted meaning of the word, and it can be powerful. Membership is purely voluntary, and entails the absolute observance of the rules and by-laws, which are based on the highest moral and ethical principles and standards. Infringement of these rules and by-laws is incompatible with membership. The British Medical Association is justly proud of its good name in the community and its long-established traditions. These it jealously guards. The Branch executive and councillors are elected annually on democratic principles. Disputes are settled and discipline is administered by trusted senior members of the profession. Their decisions are never disputed. The strength of the British Medical Association is about to be tested.

The world today is grievously ill. Millions of people are poorly fed on monotonous diets, many more are without homes and are cold and hungry. The problems of the peace appear to be greater than the problems of the war. Many remedies have been suggested. Controls introduced as war measures still remain. The law of supply and demand is being flouted. In a time when there is a shortage of foods and materials, when our loins should be girded for greater effort and greater production, individual and collective freedom, enterprise and effort are frustrated by excessive taxation and controls. Socialist theories are brought forward as the panacea of all ills. Human endeavour to work hard, to be thrifty and to save to provide for the future is being discouraged, and this tends to make more and more people wholly dependent on the State. The spirit of independence, the ability to make decisions and to stand on one's own feet are slowly being undermined by more and more laws, aimed idealistically to protect us from pitfalls and swindles, which our fathers were capable of handling alone. We are becoming soft. Our fathers would have risen in righteous indignation against many of the conditions which have been imposed on us today, and would have spoken with a clear unmistakable voice.

Nationalization, which is a mere synonym for socialization, has already threatened to engulf the banks. The medical profession is next on the list. Free medical care sounds very laudable, but I wonder whether those who advocate it realize the implications. I really believe that the majority of people who are its exponents think that nationalization of the medical profession means no more than that the Government will pay for the medical care and attention to which they are now accustomed. I wonder if they realize that they must pay for the service in taxation. Do they realize, I wonder, that in one stroke nationalization will destroy the medical care and attention which they now enjoy, because it will inevitably destroy the great doctor-patient relationship which is the foundation of medical practice? We have been told that the medical service which the Government envisages is on a salaried or a part-salaried, part-capitation basis. I suppose that it is only natural that the Government would want to have control of such a service. This inevitably means the introduction of a third party into a system which is now a sacred trust between two parties. Moreover, such a service surely must envisage at least a forty-hour week—a veritable Utopia for the practising profession. Such a service is completed in three to four days by most doctors at the present time, and this does not take into account night calls.

Mrs. X may choose Dr. A as her family doctor, but she will have to be content to have Dr. B, C or D on many occasions, because Dr. A will not be available for twenty-four hours of every day as he is under present conditions of practice. Inevitably the great personal relationship between doctor and patient which works so well now will largely disappear. As I pointed out earlier, the doctor-patient relationship is the fundamental principle on which medical practice is established and must be preserved. It is the spirit without which the body would become cold and indifferent, even as many government servants are today.

It is my opinion that such a service would take away our freedom, our priceless heritage. We would become rubber stamps, hemmed in by irritating regulations and spending much of our time filling in the inevitable pink forms in triplicate.

The Federal Council of the British Medical Association stands firm on seven principles which it regards as essential.

1. The medical profession is, in the public interest, opposed to any form of service which leads directly or indirectly to the profession as a whole becoming full-time salaried servants of the State or local authorities.

2. The medical profession should remain free to exercise the art and science of medicine according to its traditions, standards and knowledge, the individual doctor retaining full responsibility for the care of the patient, freedom of judgement, action, speech and publication, without interference in his professional work.

3. The citizen should be free to choose or change his or her family doctor, the hospital at which he should be treated, and free to decide whether he avails himself of the public service or obtains the medical service he needs independently.

4. Doctors should, like other workers, be free to choose the form, place and type of work they prefer without government or other direction.

5. Every registered medical practitioner should be entitled as a right to participate in the public service.

6. The hospital service should be planned over natural hospital areas centred on universities in order that these centres of education and research may influence the whole service.

7. There should be adequate representation of the medical profession on all administrative bodies associated with the new service in order that doctors may make their contribution to the efficiency of the service.

These principles are fundamental. They must form the basis of any system which will preserve what the profession regards as essential in the best interests of the patient and doctor alike. We believe that present-day practice with all its shortcomings has stood the test of time, and fulfills and satisfies the needs of the great majority of people. The profession for many years has tried to find a better alternative to put forward; always it has been driven back to the conclusion, that with all its imperfections, our present system of practice is the best available. The Government wants to provide a free medical service, but I doubt whether it is willing or could afford to provide a service as efficient as the one at present functioning. Its great features are that it maintains an absolute freedom for the doctor to practise where and how and in whatever particular branch of medicine he prefers. The standard of medicine is kept high because he is in

open competition with his fellows. Moreover the public is protected because the people have absolute freedom to choose and to change their doctor at will.

Payment on a fee-per-service basis would enable our present system to go on functioning unmolested. Our recent plebiscite has indicated that an overwhelming majority of the practising profession are in favour of it.

This will be our testing time. Let us be strong and stand four square for our rights. Let us not be misled by herrings drawn across the trail. Many medical men are idealists; let us be realists and face the true issue. Our freedom is threatened; we are in danger of losing a heritage which we hold in trust for future generations. I feel confident that you will not sell your heritage for a mess of potage.

I appeal to every member of the profession to give his wholehearted support to his State and Federal Councils. Trust the wisdom of their decisions. They are made only after careful deliberation and full consideration of all the facts. They are your elected representatives and can speak only with a clear unmistakable voice if they know that every member of the profession is behind them with his loyal support.

THE CONTROL OF BODY WATER BALANCE.[1]

By CHANDLER BROOKS,
Associate Professor of Physiology, Johns Hopkins Hospital, Baltimore, United States of America.

PHYSIOLOGY is the study of function. Physiologists are interested not only in the intimate details of the function of all individual organs and tissues, but also in the function of the body as a whole. The activities of the various organs must be integrated by controlling mechanisms if the organism is to react effectively in meeting the varying requirements of existence. The body possesses two systems or types of control.

The first of these is the central nervous system. Nerves run from the brain and spinal cord to the skeletal muscles and regulate their activity. In addition to this somatic outflow there is a second system of motor fibres passing from the central nervous system outward to other effector organs. This autonomic outflow innervates the smooth or visceral musculature and the glands. Afferent trunks connecting the central nervous system with a variety of sensory endings receive stimuli from the external and internal realms and thereby regulate the responses of the motor systems to the requirements of the environment.

A second type of control is exerted by the endocrine system. This loosely integrated system of glands can by its peculiar chemical products modify the activity of organs and the behaviour of the individual. There is no denying that the endocrine glands exert a humorally mediated control over certain body functions; but one should not imply that there is a close cooperation and interdependence of all glands. The hormones liberated from some of them do supplement the action of other hormones, and the majority of the glands are regulated in some measure by the anterior lobe of the hypophysis.

In controlling body function, glands and the nervous system do cooperate. Examples of this cooperation will be given in these lectures. In this first lecture I will endeavour to show how nerves and certain endocrine glands cooperate to maintain the body water balance. The questions to be answered are: What is water balance? How is the balance maintained in the presence of conditions tending to modify the body water content? What roles do the central nervous system and the endocrine glands play in this control?

THE NATURE OF WATER BALANCE.

The Importance of Body Water.

Water is a very important body component. As a matter of fact, it is the chief component. An average-sized man weighs approximately 150 pounds and the weight of an average-sized desiccated mummy is about 45 pounds. In other words, man is 70% water by weight. Furthermore, water is the medium for the exchange and metabolism of many organic solutes. It is the solvent essential to chemical reactions upon which life depends.

The water of the body is divided into two compartments between which transfers are constantly occurring—the extracellular and intracellular compartments.[(6) (15)]

The extracellular fluid constitutes 20% of the body weight. It consists of: (*a*) the intravascular fluid and (*b*) the interstitial fluid. The intravascular fluid is the fluid of the blood—the water confined to the cardio-vascular system. It constitutes about 5% of the total body weight or about 4·0 litres in man. This fluid is the transportation medium which carries food, gases, waste products *et cetera* to appropriate sites for use or elimination. The interstitial fluid is the intercellular fluid and lymph which surrounds the cells forming the fluid matrix in which they lie. Substances passing into the vascular system from lungs and intestine and out of the vascular system to muscles and other body cells must traverse this medium. You know of the transfer of water between blood and tissue spaces by capillary exchange and by the lymphatics. This reservoir of fluid constitutes 15% of the body weight, or about 11·0 litres of water.

Intracellular Fluid.

The water contained within the cells as a component of protoplasm is bound much more firmly to its location than is extracellular fluid; but some gain and loss and exchange are possible. It constitutes about 50% of the total body weight and is thus about 35 litres in volume.

The volumes of water within these compartments at any specific time can be roughly determined by anyone wishing to study water distribution. This can be done by ascertaining the degree of dilution of substances injected into the blood stream, which will behave in one of three ways. (i) They will not immediately leave the blood stream, but will be completely dissolved in or distributed uniformly throughout the water therein. Certain dyes, such as the blue dye T1824, fulfil this requirement and enable one to learn the plasma volume. (ii) They will diffuse throughout the extracellular compartment, but will not enter cells. By their degree of dilution the volume of water in the compartment is determined. Such substances are sulphocyanate, radioactive sodium, sucrose *et cetera*. (iii) They will distribute themselves uniformly through both the extracellular fluids and the intracellular fluid. Urea and thiourea have been tried, but deuterium oxide (heavy water) has been most satisfactory.

By subtraction the water of each compartment can be measured and the direction of water movements followed. I mention this because in water shifts and dehydration water may move out of one compartment but not another.

The body has other types of fluid—bile, saliva, gastric juice *et cetera*—but they are all elaborated from these reservoirs and merely represent water transfer and use as a medium of transport, The water of the body moves around and around in various cycles. The lymph and cerebro-spinal fluid circuits are examples. Also, during a day a great deal of water is poured out of the extracellular compartment into the digestive organs, as follows: saliva 1500 millilitres, gastric juice 3500 millilitres, pancreatic juice 1000 millilitres, intestinal juice 3000 millilitres, and bile 600 millilitres—a total of 9600 millilitres or 9·5 litres. This outpouring of fluid occurs chiefly during meals. The volume shift is so tremendous after a heavy meal that blood (plasma) volume is measurably reduced and interstitial fluids are drawn on heavily. When absorption of fluid and food in the intestine occurs, the water secreted is restored to the blood and to the tissue spaces.

The type of substances dissolved in or held by the water of these three compartments differs; but that is because of the selective permeability of membranes and other factors. Intracellular fluid contains potassium as the chief cation and phosphate and protein as the main anions, while extracellular fluid contains chiefly sodium, chloride and bicarbonate. I mention this because movement of

[1] A post-graduate lecture delivered under the auspices of the Australian Post-Graduate Federation in Medicine.

various substances—salts, urea, proteins—tends to cause water to move along with them. The maintenance of salt balance is related to the maintenance of the water balance.

If the salt or electrolyte concentration in any one water compartment of the body is altered there is a redistribution of water to reestablish osmotic equilibrium.[6] This is a pure physical shift or diffusion requiring no activity of a higher control system. Let us consider two examples of such a shift (Figure I). When the salt and water contents of the extracellular and intracellular compartments are normal, the extracellular compartment contains 33% and the intracellular compartment about 67% of the water.

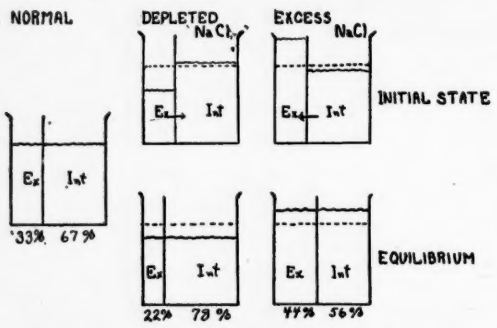

FIGURE I.

The water shift and reestablishment of osmotic equilibrium after salt depletion and excess administration. "Ex", extracellular fluid volume; "Int", intracellular fluid volume.

If in a desert region an individual loses much sodium chloride and water in perspiration, but is able to resupply his water by drinking fresh water containing no salt, a sodium chloride deficit will be created. Water is then distributed quite differently because of the high concentration of intracellular salts and osmotically active material. Water moves into the cells. Less total body water can be held. If an individual does not have access to fresh water and drinks salt water or eats salty food until a sodium chloride excess is created, water comes out of the cells into the hypertonic extracellular spaces. One tends to get dehydration of the cells. When abundant fresh water becomes available, a greater total water volume is held by the body and a disproportional percentage of it lies in the extracellular spaces until the excess salt can be eliminated.

Water Tolerance.

Over-Supply.

Although intoxication is generally produced by material dissolved in fluids drunk rather than by the water, there is such a thing as water intoxication. It is due to overloading of the body with water. This is not a normal occurrence and it cannot be produced in a normal individual; but in adrenal cortical deficiency it can be produced with some ease, for reasons which will be mentioned later. Salt deficiency creates susceptibility.[7]

Tolerance to Water Loss.

Man and other animals tend to get into difficulty because of water loss rather than because of excess. Just how long an individual can go without water depends on the rate of water loss. Calculations have shown, however, that man cannot withstand a reduction of more than 20% to 25% of his total body water without collapsing.[13]

Water deficiencies up to 11% of the body weight have been studied in man. Other mammals will survive quick dehydration of 17% to 20% and slow dehydration loss of 20% to 30% of their weight. But dehydration amounting to only 2% to 4% of the body weight has measurable consequences: the heart rate increases, deep body temperature usually rises, cardiac output diminishes; exhaustion becomes manifest and inability to perform prolonged work develops; mental instability and depression set in *et cetera*. Dehydration in man cannot be repaired by any known means except by replacement of body water. If water is drunk, recovery from all signs of simple dehydration is prompt and dramatic.[5]

Some animals are much better able to endure lack of water than are others. Hedin reported in his book "Through Asia", published in 1889, that two of his camels after two weeks of limited food and water intake, went for two more weeks across a hot sandhill desert with no water and little food. McDougall ("Botanical Features of North American Deserts", 1908) refers to an Australian expedition in which camels survived for thirty-four days without water. The camel's chief competitor on desert trails is the burro. Galton, in his book "The Art of Travel" (London, 1867), makes this statement:

> Notwithstanding his inveterate obstinacy, the ass is an excellent and sober little beast. He is not only the most enduring, but also one of the quickest walkers among cattle. He is nearly equal to the camel in enduring thirst, and thrives on the poorest pasture, suffers from fewer diseases and is unscathed by African distemper. The long desert roads and pilgrim tracts of North Africa are largely travelled over by means of asses.

The chief claim for the burro is that he can pack across the desert for three days without water. He will continue to graze long after horses and cattle have stopped eating from thirst.[5]

Man and dogs deprived of water suffer "dehydration exhaustion", which is believed to represent a deficient circulation from decrease of circulating blood volume.[4] The blood loses two or three times as much of its volume as does the body as a whole. Loss of salt, which accompanies loss of water through sweating, likewise has its serious consequences. Collapse in heat is usually a complicated phenomenon involving the consequences of water and salt loss and the consequential failure of temperature control. One thing is certain, however—the loss of 10 or 12 litres of fluid is apt to be fatal unless this loss can immediately be made good.

The body loses water constantly. It must obtain new water. What are the sources?

Sources of Body Water; Water Intake.

Fluids Drunk.

In mammals the only natural route of water gain from outside is through the alimentary tract. If water is ingested into an empty tract, it passes rapidly through the stomach, remaining relatively unchanged in pH and salt content. Absorption is generally complete within forty to sixty minutes. Hypophysectomy prolongs total absorption by at least 50%. As water moves out of the alimentary tract salts move in and isotonicity is nearly attained (with other body fluids) within ten minutes. The movement of water and salts across the intestinal wall is not determined purely by osmotic pressure gradients—this influence is dwarfed in comparison with other forces operating in the exchange. For example, water is absorbed from serum placed in the intestine. Although no concentration gradient may exist, water still moves from the alimentary tract into the blood. Some solutes (sodium and chlorine for example) move out of the alimentary tract faster than water, so that serum or isotonic saline solution when placed in the gut becomes slightly hypotonic in the process of absorption. Recent studies of water absorption carried out with the use of deuterium oxide have shown that the process is far from simple—water flows concurrently in both directions and is controlled by two different patterns of forces.[6] The important point for our present consideration is that water is absorbed quickly and with ease from the intestine.

The amount of fluid drunk by man depends upon what he is trying to accomplish. Normally a man consumes approximately 1200 millilitres of fluid as water, milk, tea, coffee *et cetera* daily. If his thirst is augmented by abnormal water loss, his intake will go up accordingly. Four litres of beer are not an unusual water load for some men to assume daily. In deserts human intakes are greatly exaggerated, as sweating becomes rapid. Intakes

up to 12 litres per day are reported. In combat areas of North Africa consumption was two to four litres per day in warm weather.

Strangely enough, if a person at rest is given water at a rate of six to ten millilitres per minute, he will at first gain weight, as his kidneys lag behind in the process of elimination. If the drinking continues, the kidneys catch up (after two hours), and elimination exceeds the intake to such an extent (8%) that there is a slight decrease in total body water. This seemingly absurd dehydration caused by drinking water is merely a consequence of washing out salt. The minimal diuretic excretion of chloride is 1·2 milligrammes per millilitre of urine. Thus there is an inability of the body to maintain osmotic equilibrium if it maintains the usual water content. There is a limit here, of course—one cannot completely dehydrate himself by forcing water. It is difficult even to create water intoxication without interfering with endocrine activity; but this principle has recently been employed by Schemm[20] in his somewhat heroic treatment of œdema. A low salt intake, an acid ash diet, and forced fluids (as much as 15 litres of water in twelve hours), by favouring the loss of salt, have repeatedly cleared œdema when other procedures have failed.

Water of Food.

When we calculate the water content of the foods of our daily meals we find that meat is about 75% water, vegetables 50% *et cetera*. Normally an individual obtains about 1000 millilitres of water in this way.

Water of Metabolism.

Finally, we manufacture water in the process of metabolizing food materials. If one writes an equation for the oxidation of carbohydrate to carbon dioxide, one readily sees that water is the other end product. Thus in burning all food one finds that every 100 grammes of protein yield 31 grammes of water, that every 100 grammes of fat yield 107 grammes of water, and that every 100 grammes of carbohydrate yield 60 grammes of water.

The body gains about 300 millilitres daily in the normal processes of metabolism.

In eliminating the end products of fat and protein combustion water is required. The gain to the body from eating these foods is not as great as that from metabolizing carbohydrate.

Can man live on water of food and of metabolism? Must he have free water to drink? These questions became important during the war, at least to those who had to consider survival of men on little rafts at sea.

Teliost fish live in and drink sea water and maintain a hypotonicity of their body fluids similar to that of man, but they have gills which possess the peculiar ability to secrete the sodium chloride and potassium chloride of sea-water. Marine birds can likewise drink sea-water and maintain a low concentration of salts in their blood. The birds' cloaca has great power of absorbing water from the fluid eliminated by the kidneys, and they too can consume water and eliminate salt. But what of seals and whales? Measurements have shown that they have no greater power to concentrate and eliminate salt by way of their kidneys than has man. They can concentrate urine to a Δ or freezing point depression of between 3·0° and 4·0° C.; but so can man's kidneys. The studies of Krogh[12] and others have shown that marine mammals maintain their water balance in this way. They evidently obtain all the water they need from their food. This is shown in the following example.

Total food intake:

1250 grammes of fish = 1000 Calories (430 from fat, 570 from protein).

Water from this:

Water content of food = 1000 grammes (80% by weight).
Water from metabolism of fat = 50 grammes.
Water from metabolism of protein = 71 grammes.
Total water obtained = 1121 grammes.

Water losses:

Respiratory loss = 106 grammes
Stool loss = 200 grammes } 306 grammes.
Urine (in amount necessary to eliminate salt and urea from the amount of fish eaten) = 800 grammes (Δ of 2·7° C.).
Total water loss = 1106 grammes.

Margin: 15 grammes.

These animals cannot drink sea-water and, furthermore, they are operating on a rather narrow margin. Why cannot man do the same? The answer to this question is as follows. Man loses water from his body surfaces—these marine forms do not. Studies have shown that a minimum of 535 millilitres of water must be given daily to balance the water loss of a man during starvation. Man can obtain benefit from fish juice; but when whole fish is eaten the water obtained from it is very little greater than that required to excrete the protein metabolites. If 500 millilitres of sea-water are ingested, the urinary volume increases to such an extent that no favourable balance remains. Death from drinking sea-water is due to intracellular dehydration (excess sodium chloride pulls water out) and to nervous system damage.

The only things man can do at sea are: (i) cut down water loss by constant immersion (this may reduce water loss by as much as 50 grammes per hour under hot, dry conditions); (ii) avoid heat and cold; and (iii) eat carbohydrate. The rate of water loss is reduced by the ingestion of glucose or sucrose, which spares protein, reduces urinary nitrogen excretion and yields water of oxidation. The limit to this therapeutic measure is, of course, alimentary glycosuria, which causes dehydration. Man must have free water—fruit or fish juice or water obtained from stores, from solar stills, from ion exchanges (desalination) or from catchment of rainfall. How much he must have depends on how much he loses.

Water Loss.

Water is lost from the body in several ways.[5][12][15] These channels of loss are as follows.

Insensible Loss—Evaporation Loss.

Insensible loss (evaporation loss) is the term used to cover the water lost from body surfaces by simple evaporation. No special secretory processes are involved. It normally amounts to about 900 millilitres daily, but under conditions of dry heat may approximate 1500 millilitres. The total amount lost in this way is roughly parallel to the resting metabolism. There are really two types of surfaces involved in this loss: the surfaces of the respiratory passages and the external surfaces of the body.

Respiratory loss approximates 400 millilitres. Some water must be lost in the process of respiratory elimination of carbon dioxide and the acquisition of oxygen. This loss is proportional to ventilation rate, because the air expired is practically saturated with water vapour. Warmth and humidity of the inspired air likewise modify this loss. This loss is irreducible by the water-balance control mechanisms, because it is controlled by the respiratory system. Usually this respiratory surface loss constitutes less than half the total insensible water loss.

Loss from skin surfaces is about 800 millilitres. Insensible water loss from mammalian skin represents evaporation from layers of tissue below the surface. The rate of evaporation from skin at 33° C. (91·4° F.) is about six milligrammes per square centimetre per minute. This loss is the same for Negro and white, living and dead, defatted and preserved skin. If the epidermis is removed the rate of loss from the exposed surface is eight times as great as from normal skin surface. The epidermal layer retards evaporation loss. The thickness of the layer is of no consequence however; there is as much loss from thick keratinized skin as from thin skin. The amount of loss depends on temperature gradients, humidity and convection currents in the environment. It is not greatly reduced by dehydration and is relatively uncontrollable by water-balancing mechanisms.[5][15]

Sweating.

In hot, moist atmospheres over three litres of sweat may be secreted per hour. This maximal rate of loss usually does not continue for long. Under desert conditions, how-

ever, men lose as much as 11 litres of fluid per day in sweat. As men become acclimatized to heat they lose more sweat than they did before. The maximal rate of sweating without water can be attained within twenty minutes; but after two hours of maximal sweating the rate declines and by six hours the rate is so low that cooling fails. Within limits, however, sweating is not affected by water intake or state of body hydration. The temperature-regulating system puts it out and controls sweating rate so long as there is any water available to put out. The controls of body water balance are not exerted here. The control of water balance and the control of body temperature are inseparable. In discussing the one, we needs must discuss the other or place artificial boundaries between them. Since the consequences of overheating are more immediately fatal, the water balance is sacrificed to maintain the body temperature at a low level.

Other Losses, Relatively Uncontrolled.

Fluid entering the intestine is conserved. Normally the losses of water essential to excretion do not exceed 200 millilitres. Only under pathological stresses is the water loss from vomiting or diarrhœa of significance to water balance; but in these pathological states the loss of salts and water does produce serious dehydration.

Kidneys; Urine Water Losses.

The normal urine output is approximately 1400 millilitres, but this varies enormously with water availability and with salt and urea elimination requirements. When sweating increases, urine output diminishes. That is one reason why urine output is greater in cold than in heat. Urine output never falls to zero in normal individuals. There is an obligatory salt and urea loss. The situation will be summarized later.

What are the limits of the ability to eliminate water? The body is rather well protected here. One of the ways in which this has been studied is the following. An animal will take an enormous amount of water in order to get food.[1] It has been found, by progressive dilution of a fluid diet, that an animal will build up an intake of water equal to 125% of its body weight per twenty-four hours in order to meet its caloric requirement. This represents the maximum, and if it cannot get enough food by drinking that much it starves to death. If whole milk is diluted until its solid content is 2·5% of volume, animals can live on it by drinking maximally; but if the milkman puts in any more water, starvation is the result. At least rats can take in and eliminate water up to 125% of body weight per day. Presumably a human being could do equally well.

THE CONTROL OF WATER BALANCE.

How is a balance maintained between water intake and water loss? It can be said that control is exerted at two points—by thirst and by kidney action (Figure II).

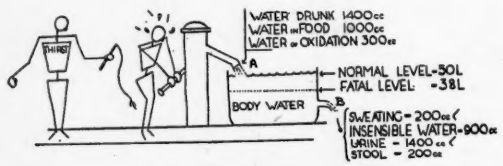

FIGURE II.

Diagram of water balance maintenance. A: point of control of intake; B: control of output.

The Control of the Intake: Thirst.

When the body needs water, the individual becomes thirsty. Thirst is a complex sensation with several varying elements, and it is hard to define subjectively. After many years of work physiologists still cannot tell you what it is. There are suggestive theories, however, and the hypothesis of local origin as advanced by W. B. Cannon has much to recommend it.

In brief statement the theory is this. The salivary glands and other glands of the mouth and throat have as one of their functions that of keeping the membranes of the mouth and throat quite moist. Like other tissues they suffer when water is lacking in the body—a lack especially important to them, however, because their secretion is almost wholly water. When these glands fail to provide sufficient fluid to moisten the mouth and throat the local discomfort and unpleasantness which result constitute the feeling of thirst.

It is true that a dryness of the mouth produced by speaking, by emotional inhibition of blood flow to the glands, and by atropine and drugs which inhibit salivary secretion, does cause thirst when the body does not need water. Anæsthetizing the membranes with cocaine tends to relieve thirst. By keeping the membranes artificially moist one can induce an animal to refuse water when it is needed. A decrease in salivary gland secretion occurs immediately upon establishment of a negative water balance, be it due to hæmorrhage, excess sweating or consumption of a heavy meal of low water content. The evidence for and against this theory is in the textbooks. It is undeniable that "dryness of the mouth" is one of the prominent components of thirst; but there is strong evidence to support the claim that thirst involves more than that.

In animals and men with œsophageal fistulæ thirst is not satisfied until water enters the stomach. Such animals will drink to exhaustion at a rate of 500 millilitres per minute. If a person is truly dehydrated, moistening the mouth with water does not give full relief. There appears to be an uneasiness of generalized origin which induces in animals exploratory activity, restlessness and behaviour changes until the water deficit is made up. Thirst is not due to osmotic pressure of body fluids; but it may be due to dehydration of the intracellular compartment—osmotic changes such as those produced by sodium chloride cause thirst, but osmotic changes such as those produced by urea do not attract water from cells (there is no fluid shift outward, but the osmotic pressure rises).

The only new thing I have to say about thirst is that it is not a completely adequate safeguard against dehydration. For example, animals in the sun and in hot atmospheres do not drink enough water to escape dehydration. Men sweating profusely drink only half enough water to restore their loss, and their efficiency and physical performance can be improved by "forcing" enough water to replace sweat losses. Nausea and anorexia follow heavy water intakes in the heat, and this tends to induce voluntary dehydration. Dehydration is usually held at about 2% to 4% weight loss and balanced there under desert dry conditions. This deficit is made up at night and at meal times.

Thirst, like appetite, provides a stimulus to maintain an important balance; but little progress has been made in completely localizing the sensations and urges that concern it. Water lack causes dryness of the mouth, and dryness of the mouth causes thirst, but this is not the entire story.

Thirst controls water intake. Man can drink only about one litre of fluid at one time. It is rather interesting that animals with greater dehydration resistance can assume a greater water load. A burro which weighs only about one-quarter more than a man can drink 12 litres at one time or in one drink.

The Control of Water Output.

The obligatory losses of water in respiration, from the skin surfaces and in sweating, are not subject to much control based on water balance status. They will deplete body water down to a fatal level. In acclimatization less chloride is lost in sweating, but this is salt conservation. Control is exerted over only a fraction of the urinary loss.

Clearance tests have shown that normally the kidney filters about 170 litres of fluid per day and absorbs about 168 litres containing 1,000 grammes of sodium chloride, 360 grammes of sodium bicarbonate, 170 grammes of glucose and varying amounts of amino acids *et cetera*. The rate of glomerular filtration can alter and the Tm or

"tubular secretory mass" can change; but normally control is exerted only over reabsorption processes in the tubules. Two litres are normally lost, but much more can be lost provided that the control mechanisms are relaxed.[2][6][9][13][21]

As solutes are reabsorbed back into the blood stream they carry water with them to the extent of 80% of that filtered. This is chiefly an obligatory reabsorption and can be modified only by interference with solute movement. There is some competition for the privilege of reabsorption; certain sugars and amino acids are reabsorbed partly in proportion to their ability to compete for secretory channels through the tubule cell. Material blocked by opposing compounds naturally is lost and with it some water must be eliminated.

Those solutes which are not reabsorbed tend to carry water out with them in the urine. Furthermore, some materials are actually secreted outward by the tubules into the lumen, and they likewise attract water and make its elimination obligatory. It is rather interesting that substances in the blood compete "for secretory privilege". According to Shannon (*Physiological Reviews*, Volume XIX, 1939) the tubules contain a fixed amount of substance with which the material to be secreted combines. Penicillin is one of the substances which competes for the receptor material, and it has been suggested and shown by Beyer and others that if the tubular receptor material is saturated with non-toxic *p*-aminohippurate, then penicillin excretion is signicantly delayed.

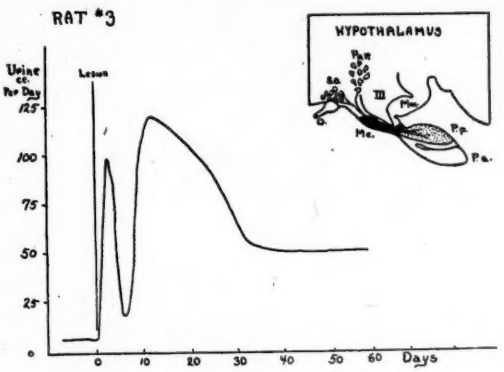

FIGURE III.

The site of a lesion producing *diabetes insipidus* in the rat. Lesion black. III, third ventricle; Me., median eminence; Mm., mamillary region; O., optic chiasma; Par., paraventricular nucleus; P.a., *pars anterior* of hypophysis; P.p., *pars posterior* of hypophysis; S.O., supraoptic nucleus.

These specific and non-specific competitions for inward and outward secretory privilege not only affect conservation of salts, food materials, vitamin *C et cetera*,[2] but they also influence the volume of water which must be carried out and the power of the kidney to conserve body fluid. These secreted and unreabsorbed materials control a fraction of water, prevent its reabsorption. This might be called an obligatory secretion of water.

Only about one-fifth of the glomerular filtrate represents controllable water and solute. However, this fraction amounts to about 30 to 40 litres, which can be reabsorbed or not in accordance with the demands of water conservation. In the disease *diabetes insipidus* the power to conserve this fraction is largely lost. Studies of this disease have done much to elucidate the nature of water balance control.

Diabetes Insipidus.

The only obvious abnormality of an animal with *diabetes insipidus* is its excessive excretion of water (and excessive drinking); otherwise the renal function is apparently normal.[13][21]

Diabetes insipidus occurs in approximately one case in every 10,000 admissions to American hospitals. It is caused by tumours or lesions in the hypothalamus which interrupt or injure the hypothalamico-hypophyseal system. The disease has been produced surgically or experimentally in men, monkeys, dogs, cats and rats. In these instances also the effective lesions have involved the hypothalamico-hypophyseal system.

The hypothalamus consists of a small region of the brain overlying the *sella turcica* (the hypophysis), bounded dorsally by the thalamus, anteriorly by the preoptic areas and caudally by the mid-brain. Laterally the twenty or so well-defined nuclear groups of the hypothalamus are bounded by (and some make connexions with) the medial forebrain bundle, which is a tract of ancient origin arising anteriorly in the predominantly olfactory areas of the forebrain.

The hypothalamico-hypophyseal system consists of bundles of fibres originating from the supraoptic and paraventricular nuclei which extend caudally and ventrally through the *tuber cinereum* to the *pars neuralis* of the hypophysis. This portion of the hypophysis originated as an evagination from the floor of the third ventricle and contains secretory elements which are modified neuroglia cells or pituicytes. These fibres of the hypothalamico-hypophyseal tract end upon these elements. These cells liberate substances which can be extracted and are commonly called pituitrin. Pituitrin may be comprised of one or more elements or hormones, or it may in itself be the mother hormone. It has a pressor, an oxytoxic and an antidiuretic effect. This antidiuretic hormone is essential to normal reabsorption of water by the loops of Henle of the renal tubule. *Diabetes insipidus* is caused by deficiency of antidiuretic hormone.

It has been shown by Gersh that these specialized neuroglia cells show evidence of hyperactivity and hypoactivity in accord with the body's need to conserve or eliminate water.[21] When the nerves to these cells are stimulated directly, more hormone is liberated and diuresis is reduced.[10] During dehydration the antidiuretic material appears in the urine, thus revealing a greater production in line with greater water conservation. In *diabetes insipidus* the nerves from the brain to these cells are found to be severed, and in consequence of this the cells degenerate.[5][11][17][19] Polyuria, with an output varying from 10 to 30 litres a day develops, and a compensatory polydipsia results.

Not all cases of polyuria are true *diabetes insipidus*. Psychogenic polydipsia is not uncommon, and the existence of this condition may explain why certain subjects of so-called *diabetes insipidus* do not respond to pituitrin administration. They can be identified by injection of hypertonic sodium chloride solution (2·5%). Normal individuals and people with psychogenic polydipsia give an R/P ratio below 1·0, showing that the renal tubule conserves water in preference to chloride (R, virtual chloride concentration of tubule reabsorbate; P, plasma chloride concentration). In true *diabetes insipidus* the renal tubules cannot conserve water in preference to chloride, and the R/P ratio rises above 1·0.[9]

In experimentally and clinically produced and in spontaneously developing *diabetes insipidus* several modifications of the sequence of events may occur.[14][17][19][24] (*a*) In some cases there is a gradual development of a permanent high level of urine output. In these cases the neural hypophyseal tissue has been completely destroyed or removed. The early phases develop into permanent polyuria without interruption, and the speed of development depends on the speed of the destructive process. Surgical removals produce the sudden appearance of permanent maximal *diabetes insipidus*. (*b*) In the majority of cases following injury or in the course of development there is an immediate sharp rise in urine output, which lasts three days to a week. The injury temporarily cuts out all or part of the normal active secretory tissue and produces a temporary shortage of antidiuretic hormone. The magnitude of this early temporary phase is directly proportional to the amount of gland inactivated.

This early *diabetes insipidus* is commonly rendered only temporary by the development of a period of oliguria or anuria, which is produced by two causes: (i) remnant

tissue becomes active in an effort to compensate and put out more antidiuretic hormone; (ii) the cells which have been isolated from their neural connexions begin to disintegrate and release their stored antidiuretic hormone, thus oversupplying the kidney for a few days (two to seven).[24]

Finally, a permanently maintained condition begins to emerge. What happens after the period of low urine output depends on the nature of the lesion. (i) If all secretory tissue has been separated from its neural connexions, full permanent maximum *diabetes insipidus* develops after the degenerating cells have lost their preformed hormone. (ii) If a small remnant remains, it may hypertrophy and meet the demands for a while, only to be overcome later by overwork atrophy. In this instance *diabetes insipidus* would develop slowly. The remnant might eventually be able to compensate enough finally to reduce the *diabetes insipidus*. (iii) If the remnant is large enough to take over function by its hypertrophy, it will reestablish a normal or practically normal water balance.

The most common picture is one characterized by temporary *diabetes insipidus*, oliguria, and a final permanent phase of polyuria of graded degrees of intensity. The cells producing hormone are spread over the base of the brain and through the median eminence, and *diabetes insipidus* will not result from lesions involving only a portion of them. They respond to changing needs for water retention, but only when their nerves are intact.[24]

The Nature of the Excitatory Process.—What is the stimulus and where does it act in exciting the hypothalamico-hypophyseal system to pour out more antidiuretic hormone? The stimulus acts directly on the cells of the supraoptic nuclei, because they continue to control water balance normally even after isolated surgically from all connexions with other structures save those to the *pars neuralis*.[8] There has been much controversy concerning the excitatory stimulus. It is not clearly an osmotic phenomenon, though changes in blood concentration do tend to be associated with greater output of antidiuretic hormone. It may be the rate of change (Baldes and Smirk). About the best modern statement is this of Hare:[8]

> It is probable that for the regulation of water exchange there is a system which includes the hypothalamico-hypophyseal mechanism which through its sensitivity to changes in the salt content of the blood, controls the secretion of pituitrin and thereby the concentration in which salt is reabsorbed back into the blood.

Changes in Diabetes Insipidus.—Diabetes insipidus may be reduced or abolished by ablation of the anterior lobe of the hypophysis, by removal of the thyreoid or adrenal glands (cortex) or by limiting the intake of protein and salt.[11] These modifications act by changing water movements associated with solutes—salt and urea.[22] When metabolism is lowered there are fewer metabolites and less water turnover. Of these glands, only the adrenal cortex plays any important part in salt and water balance. In the absence of adrenal cortical hormones reabsorption of sodium chloride is impeded and potassium excretion is hindered. The hormones therefore are essential to normal sodium chloride conservation and potassium elimination. This modifies water shifts in the body, loss of sodium chloride favouring loss of water. Patients with adrenal cortical deficiency become dehydrated. They are also susceptible to water intoxication, because they do not excrete excess water normally—why is not known. Excess water is not easily balanced because they also lack salt.

Whole pituitrin lowers Tm (tubular secretory mass) and chloride reabsorption, reduces plasma flow and slightly raises glomerular filtration. The fraction pitressin has no chloruretic effect, while pitocin is reported to reduce chloride reabsorption. The antidiuretic effect is due to loss of one fraction and the chloride retention often claimed for *diabetes insipidus* is due to loss of the other. The role of the *pars neuralis* in salt balance is minor. If it does anything it reduces chloride reabsorption. The cells of the supraoptic nucleus contain droplets similar in appearance to secretory droplets in gland cells.[23][16] Assays have shown that the nucleus does contain appreciable amounts of antidiuretic hormone. If this nucleus can act as a secretory gland we have a very interesting phenomenon indeed, and it may account for some of the cases of recovery from *diabetes insipidus* in which no hypophyseal or tuberal tissue appeared to have escaped destruction. Nicotine, morphine and other drugs exert an antidiuretic effect which is potentiated by physostigmine. Acetylcholine has been claimed to release pitressin also. These observations have led to the suggestion that the hypothalamico-hypophyseal system possesses a cholinergic system of mediation.[10][17][19]

CONCLUSION.

I have thus touched upon bits and pieces of the enormously large literature concerned with the physiology of water balance. In conclusion, it can be said that the numerous constantly occurring transfers of water which go on within the body are not as yet fully understood. We do know, however, that a neuro-endocrine system of control is present which maintains a water balance essential to the existence of the organism. We are beginning to know something of its mechanism of action.

REFERENCES.

(1) E. F. Adolph: "Forced Water Drinking", *Federation Proceedings*, Volume VI, 1947, page 67.

(2) J. L. Ayer, W. A. Schless and R. F. Pitts: "The Relationship between the Renal Tubular Reabsorption Capacity for Phosphate and Glomerular Filtration Rate", *Federation Proceedings*, Volume VI, 1947, page 70.

(3) C. G. Breckenridge: "Intracellular Granules in the Hypothalamus and Infundibulum of the Dog", *Federation Proceedings*, Volume VI, 1947, page 81.

(4) B. DeBoer: "Water and Salt Exchange during Chronic and Acute Dehydration in the Dog", *The American Journal of Physiology*, Volume CXLVII, 1946, page 399.

(5) D. B. Dill: "Life, Heat and Altitude", 1938.

(6) J. R. Elkington: "Physiology of Body Fluids", in "Howell's Textbook of Physiology", Fifteenth Edition, 1946.

(7) R. Gaunt: "Animal Experiments Relating to Water Diuresis Tests for Adrenal Insufficiency", *Journal of Clinical Endocrinology*, Volume VI, 1946, page 595.

(8) K. Hare: "The Nervous Control of the Release of Pituitrin", *Federation Proceedings*, Volume VI, 1947, page 123.

(9) R. S. Hare, K. Hare and D. M. Phillips: "The Renal Excretion of Chloride by the Normal and by the Diabetes Insipidus Dog", *The American Journal of Physiology*, Volume CXL, 1944. page 334.

(10) G. W. Harris: "The Innervation and Action of the Neurohypophysis", *Philosophical Transactions of the Royal Society*, Series B, Volume CCXXXII, 1946, page 385.

(11) P. Heinbecker, H. L. White and D. Rolf: "The Essential Lesion in Experimental Diabetes Insipidus", *Endocrinology*, Volume XL, 1947, page 104.

(12) A. Krogh: "Osmotic Regulation in Aquatic Animals", 1936.

(13) Y. Kuno: "The Physiology of Human Perspiration", 1934.

(14) W. E. Le Gros Clark: "The Hypothalamus", 1938.

(15) H. L. Marriott: "Water and Salt Depletion", *British Medical Journal*, Volume I, 1947, pages 245, 285, 328.

(16) E. V. Melville and K. Hare: "Antidiuretic Material in the Supraoptic Nucleus", *Endocrinology*, Volume XXXVI, 1945, page 332.

(17) W. J. O'Connor: "The Control of Urine Secretion in Mammals by the Pars Nervosa of the Pituitary", *Biological Reviews*, Volume XXII, 1947, page 30.

(18) J. P. Peters: "Water Exchange", *Physiological Reviews*, Volume XXIV, 1944, page 491.

(19) M. Pickford: "Control of the Secretion of Antidiuretic Hormone from the Pars Nervosa of the Pituitary Gland", *Physiological Reviews*, Volume XXV, 1945, page 573.

(20) F. R. Schemm: "High Fluid Intake in Management of Edema, especially Cardiac Edema; Clinical Observations and Data", *Annals of Internal Medicine*, Volume XXI, 1944, page 937.

(21) J. A. Shannon: "The Control of Renal Excretion of Water. I. The Effect of Variations in the State of Hydration on Water Excretion in Dogs with Diabetes Insipidus", *The Journal of Experimental Medicine*, Volume LXXVI, 1942, page 371.

(22) C. A. Winter, W. R. Ingram and R. C. Eaton: "Effect of Dietary Changes upon Urine Volume and Renal Function in Experimental Diabetes Insipidus", *The American Journal of Physiology*, Volume CXXXIX, 1943, page 700.

(23) C. McC. Brooks and I. Gersh: "Innervation of the Hypophysis of the Rabbit and Rat", *Endocrinology*, Volume XXVIII, 1941, page 1.

(24) C. McC. Brooks and I. Gersh: "Correlation of Physiological and Cytological Changes in the Neurohypophysis of Rats with Experimental Diabetes Insipidus", *Endocrinology*, Volume XXXVIII, 1941, page 6.

SOME PROBLEMS CONCERNING THE RECRUITMENT AND TRAINING OF SURGEONS AND THE PRACTICE OF SURGERY IN QUEENSLAND.

By E. S. MEYERS,
Acting Honorary Professor of Social and Tropical Medicine, the University of Queensland.

THE present is a time of swiftly occurring change, affecting in many ways our social customs and practices. This article attempts to show the impact of events on surgeons and the practice of surgery.

The subject will be dealt with under the following headings: (*a*) historical, (*b*) requirements for an efficient and adequate surgical service for the State, (c) the necessity for a survey of present surgical practice, (*d*) commentary on the present position of surgical practice, (*e*) discussion on the responsibility for the maintenance and improvement of an efficient service, (*f*) the future.

Historical Review.

Until very recently every legally qualified medical practitioner was entitled to subscribe himself "surgeon" and to place upon his nameplate, for the information of all able to read, the word "surgeon". The practice of surgery in Queensland from the very earliest times has been in the hands of those holding appointments at public hospitals, of those who were recognized as surgeons by their fellow practitioners and/or the general public (although they held no hospital appointment) and, lastly, of all those practitioners who lived in sparsely populated areas and were alone available to render such surgical aid as was necessary.

How the exponent of the science and art of surgery received his training was purely a personal matter. The ranks of those who practised surgery were added to by those whose experience had been gained after training in other States or overseas, such training being continued by practice in Queensland. From very early times the Medical Society of Queensland and later the Queensland Branch of the British Medical Association have provided facilities for post-graduate education in surgery, chiefly by means of lectures and clinical meetings at various hospitals, principally in the capital cities, but occasionally in country centres.

There have, of course, always been those who teach not as members of an organized body, but rather in the manner enjoined by the Hippocratic oath.

An important suggestion designed to raise the standard of surgery was made in 1920 by Sir Louis Barnett, who proposed the formation of an Australian College of Surgeons. The Australasian College of Surgeons was founded in 1926 as a voluntary organization. From its inception Queensland supplied its quota of members, who have benefited greatly from the advantages the College has to offer in the post-graduate training of surgeons. This opportunity, however, existed only for members of the College, although at times the general members of the profession were invited to attend certain meetings.

In 1926 the British Medical Association formed a permanent post-graduate committee, which undertook among other matters, responsibility for training in surgery. A feature of the committee's work was the inauguration each year of a special post-graduate week (continuous post-graduate training lasting one week). During this period considerable attention was given to surgery; and frequently surgeons from other States visited Brisbane and, at times, other centres and gave instruction in post-graduate surgery by lectures and by operative demonstrations of one sort or another.

In the twenty-one years of its existence many practitioners in the city and the country took the opportunity of improving their knowledge by attendance at the yearly lectures and demonstrations. The post-graduate committee was merged with the University of Queensland Post-Graduate Medical Education Committee, which has continued the work of the early committee. This has included sending out lecturers to the country to give instruction on a variety of subjects, including surgery.

A very important legislative measure became law in 1939, which restricted the right to use the title of surgeon to those whose qualifications entitled them to be placed on a special register by the Medical Board of Queensland. At the present time, in order to gain such entry to the register, a candidate must bring evidence that he possesses a higher degree or diploma in surgery. This provision of the *Medical Act*, the first of its kind to be placed on the statute book of any Australian State, is having important effects and has given rise to some of the problems that are being considered in this paper.

Requirements for an Efficient and Adequate Surgical Service for the State.

In order to provide an efficient and adequate surgical service for the State we must have: (*a*) a sufficient number of competent surgeons; (*b*) a sufficient number of well-equipped hospitals, including all the ancillary services; (c) personnel who are keen and enthusiastic, who are capable of undertaking research work, and who, being acquainted with the literature, will be fully conversant with what is being done in the rest of the surgical world.

There should be grants for travelling scholarships, so that the younger members of the profession may go abroad and bring back to their practice as much as possible of what is best in surgery today.

The Necessity for a Survey of Present Surgical Practice.

Whether any comprehensive survey of surgical practice has ever been made is doubtful. In the past, however, hospitals published an account of their surgical work in annual reports, so that it was possible to obtain some idea of the scope of surgery undertaken, even though it may not have been possible to judge of the results of such surgery, in relation to either mortality or morbidity. No such records have been published of work done in private hospitals. It is possible that Dr. Hare may have reported on the standard of surgery in Queensland during his *régime* as inspector of hospitals.

Unless information is available on the quality and quantity of the surgery performed throughout the State it may be reasonably claimed that future development will depend very largely on haphazard and piecemeal methods rather than upon scientific planning, which is so necessary to meet the needs of today.

Many of those qualified to express an opinion consider that the case records of our hospitals are not such as would be approved in a first-class institution. Without suitable records it is most difficult to form an accurate estimate of the quality of the work done in any particular hospital. In America no hospital would be considered as a first-class one unless its system of accounting for surgical work done was satisfactory. Hence it cannot be too strongly urged that an immediate start should be made to provide not only for better case recording, but also for the yearly publication of the fullest information of the results of surgical work performed in all hospitals throughout the State.

Commentary on the Present Position of Surgical Practice.

Until a comprehensive survey (as mentioned above) has been carried out it will not be possible to form a very exact estimate of the quality and quantity of the surgical service available to the public. There are, however, certain trends in surgery and certain facts concerning the recruitment of new personnel that call for comment.

In the past, as there was no medical school in Queensland, those who were to practise surgery received their undergraduate training for the most part in other States, mainly New South Wales and Victoria. Although it has never been possible to form an accurate idea of the quality of the surgical service available at any one time, it is well known that many of the younger surgeons went into practice after serving two years or more in the more

senior resident positions in the southern hospitals. Others, after graduating in the south, received their post-graduate surgical training in hospitals within the State of Queensland, their instructors being hospital superintendents and private practitioners who either devoted their attention mainly to surgery or were sound surgeons even though practising as general practitioners.

In the city, and to a lesser extent in the country, there have been a small number of practitioners who gained their surgical experience in British universities, and a smaller number still who hold higher degrees of those universities. Many have gone into practice immediately after graduation.

Of recent years there have been important changes in Queensland. They are as follows.

1. In the capital's larger hospitals the replacement of the honorary system by a part-time paid system of medical service.

2. Following upon the amendment of the *Hospitals Act* in the early twenties, the decrease in the number of voluntary hospitals and the increase in the number of what, in effect, have become State hospitals. This has resulted in a dual system of hospital service, namely: (*a*) that supplied in private hospitals by private practitioners and (*b*) that supplied in public hospitals by full-time medical officers who have no right of private practice; and, furthermore, the division of the population into two classes of people—those able to pay and those unable to pay for their own surgical care (this distinction has recently been changed, as will be seen, for public hospitals are open to all irrespective of income).

3. The establishment of a Queensland school of medicine.

4. Changes consequent upon the second World War.

5. The amendment of the *Medical Act* with respect to practice as a specialist.

6. The growth of specialism within the specialty of surgery.

7. The handing over of certain legislative powers to the Commonwealth from the States as a result of a recent referendum.

8. The growth of services ancillary to surgery.

9. Certain economic factors.

Let us examine each of these factors bearing on our problem.

1. The introduction of the paid system of part-time visiting officers in Brisbane hospitals has already had important effects on the practice of surgery. In the first place there are far more patients under the care of each surgeon than in a number of voluntary hospitals, particularly those connected with teaching schools elsewhere. For example, in one large teaching hospital surgeons have one operating day only and one day of ward rounds, whereas here there are two operating days and two days for rounds, and the minimum number of hours per session is three.

A second change has been the introduction of a system of senior resident surgical officers responsible for much of the emergency work which in the past was largely done by honorary assistant surgeons (visiting). These resident surgical officers are usually graduates of the Queensland University or of other Australian universities of two or a few years' standing. They are called upon to work long hours and carry much responsibility. They naturally aspire to become specialists in surgery, but their long hours of work render it very difficult for them to take the opportunity of advantages offering in the medical school to obtain a higher degree. It is thought by many that, if the duties of these men included the undertaking of post-graduate study and a share in undergraduate teaching of anatomy and physiology, such practice would be to the advantage of the hospital, the individual and the State.

A third and very important effect has followed upon the extension of free hospital services to all those desiring it, irrespective of income. This has resulted in a great increase in the amount of work required from the members of the medical staffs of public hospitals.

One particularly unfortunate effect in a teaching hospital is that the needs of the medical student and the needs of those graduates who wish to further their surgical education tend to be overlooked.

In teaching hospitals at any rate it would be wise to give this matter mature consideration. Some suggestions to ameliorate the present position are: (i) to utilize the services of highly trained surgeons more on consultative work, technical work and teaching than at present; (ii) to increase the staff, both resident and visiting, so that both will have more time for teaching, study and research; (iii) to transfer a great deal of the work of investigation *et cetera* to competent, generally trained men, who can apply to the specialist for consultation and help where necessary.

Until these and other changes are brought about, clinical teaching in hospitals will continue to be unsatisfactory.

2. The change in hospital management has had far-reaching effects. A series of legislative enactments has, in the long run, virtually resulted in the taking over of the public hospitals by the State. This is not nominally so, since hospitals boards control the hospitals; but, as their chairman and the majority of the representatives are State nominees, they are to all intents and purposes State hospitals.

As has been noted already, in many centres the effect of this has been, particularly where surgery is concerned, to divide the community and the medical population into two groups. This tends to prevent any possibility of setting up community hospitals and prevents the pooling of resources. This is particularly so in small places, where such pooling of resources in both equipment and personnel is most desirable.

Such a system, too, precludes the patient in many instances from obtaining the services of those best suited to deal with his disabilities—disabilities, be it noted, that are no respecters of geography.

3. The establishment of a faculty of medicine has made possible the beginning of post-graduate instruction in surgery on a grade not possible before. Already a small number of practitioners have obtained the higher degree of surgery of the University of Queensland. With the new medical school now some eleven years old, a number of Queensland graduates have taken positions in country hospitals as full-time medical officers. Some of these positions involve the undertaking of very great responsibilities; and so far as surgery is concerned, in some cases these responsibilities are undertaken by men without the years of training that are considered essential for the acquisition of surgical competency.

4. The recent conflict, like the previous one, played its part in affecting the practice of surgery in many ways. Because of the exigencies of war and the need for service medical officers, many of the earlier graduates of the school had to forgo any opportunity of post-graduate medical education, and many who desired to were precluded thereby from taking out a degree in surgery. In quite a number of instances these men have not only lost this opportunity, but feel they have been superseded by medical officers junior to them in age, and, furthermore, by men who have had no war service.

5. The amendment of the *Medical Act* has had some paradoxical effects. No person is able to proclaim that he is a surgeon unless he produces evidence to the Medical Board that he has a higher surgical degree or diploma. At the present time the University of Queensland confers no post-graduate diplomas in surgery. The effect of the Act is likely at the moment to lead to a diminution rather than an increase in the number on the register of surgeons.

On the other hand there is no legal power to prevent any young graduate, however inexperienced, from engaging extensively in the practice of major surgery. There is evidence available that a number of young graduates do so engage in the practice of a type of surgery for which they are not well qualified by training or experience.

6. Surgical specialism within surgery has made the training of resident medical officers more difficult than in the past. Formerly it was possible to provide six months' residency as a house surgeon for very many medical officers, and during this time they could be trained in the

surgical work which they could reasonably be expected to undertake as part and parcel of the work of a general practitioner.

7. It is too early to judge of the effect on the surgical services of the State of handing over these powers to the Commonwealth.

8. The provision of ancillary services, such as pathological, biochemical, physiotherapeutic and social services *et cetera*, provides material for an interesting story, but the history of the origin of these services in Queensland would occupy many pages. For the most part they have come into being through the enthusiastic advocacy of individuals or of small groups of people, even in the teeth of the strongest opposition from those who dislike any alteration in the *status quo*. Such opposition is not restricted to laymen, but comes from members of the medical profession as well.

Up till comparatively recent times, and even today, not only hospital authorities alone but surgeons in particular have shown much more interest in disease than in health; once the necessity for surgical intervention has ceased far too little interest has been taken in the patient's restoration to health and in his return to productive employment. This attitude of mind still persists in spite of the fact that during two world wars the fullest use was made of the ancillary services and that, of necessity, the chief emphasis in treatment was in getting the serviceman back into the fighting line. Work in the rehabilitation of the injured, by men like Sir Robert Jones in the first World War and Sir Reginald Watson Jones in the second, has been either overlooked or forgotten to a very large extent.

The importance of occupational therapy is scarcely yet appreciated in many places where one could expect it to be. Hospital authorities should realize that in the interest of economy, apart altogether from that of the patient's morale (important as this is in treatment), rehabilitation should be an essential part of hospital service. To achieve this object, however, it will be necessary to bring ancillary services to a high pitch of efficiency and also to make them available throughout the length and breadth of the State.

Those responsible for the social services of the Commonwealth have already made a start in providing a number of rehabilitation centres for invalid pensioners and they are already doing excellent work for returned servicemen. Much more remains to be done, and social medicine, too, can, if given the opportunity, play its part not only in rendering much surgery unnecessary, but also by seeing to it, through attention to nutrition and mental and physical health, that those who are so unfortunate as to need surgical treatment will be in much better condition to make a good and speedy recovery.

Excellent as was the treatment of the wounded in wartime, present conditions should enable us to render even better service to the casualties of peace-time. But to bring about such a desirable state of affairs various sections of our surgical and ancillary services will need much building up and there will have to be much more cooperation and collaboration between the various sections than exist at present.

Over the years much progress in surgery in Queensland has been due to the efforts of comparatively few medical men, who, after visits to southern States and in a few cases to other countries, have introduced new ideas and methods of practice into everyday hospital work. It is rather a paradox that in war-time in the fight against disease we have highly organized intelligence services, whose function it is to perfect our means of defence and offence against the enemy. In peace-time, in the ever-present war being waged against disease, few and in many places no such intelligence services exist to bring to the rank and file of the medical service all the information and all the resources required to prevent and repair the ravages of disease.

9. Economic factors profoundly affect the problems under review. In this State the Government, through its Hospitals Board, provides on request free hospital treatment. This is an extension of "free" social services, for primary education has been "free" for many years, and more recently secondary education too, provided the necessary entry examination is passed. However, it should be realized that, if all those who are entitled to free hospitals and free education exercised the rights that have been granted them, it would be quite impossible to meet such demands.

Thus it will be seen that what has been described by Garrison in America as "a trend towards socialism being a feature of medicine entering the machine age" applies to Queensland. In America increased taxation and increased costs of living are having a serious effect on the finances of the voluntary hospitals, so much so that Faxon, of Boston, has pointed out that some of the voluntary hospitals are no longer able to meet their financial commitments.

There is no doubt that voluntary hospitals have played a most important part in building up American surgery to its present high status. The names of many American hospitals, such as Johns Hopkins and the Mayo Clinic, are household words in the surgical world, and many surgeons desire to visit these centres as keenly as many pilgrims feel the urge to visit Mecca.

Faxon says:

> The health and death rates of the community are in direct relation to the amount of money intelligently spent on sanitation, preventive medicine and education of doctors and others engaged in the care of the sick, and the support of medical schools and the hospitals. If the people of Boston and the United States want hospitals they must pay for them.

This is also true of Queensland. It is quite certain that, unless more money is spent in the staffing and equipment of hospitals and the promotion of ancillary services, they will fall far short of what is desirable and of what has been achieved in the best hospitals in Great Britain, in the United States of America and in certain Australian voluntary hospitals, particularly those which are teaching hospitals in relation to medical schools.

Economics certainly loom largely in this question, but we need economics for living—not the post-mortem type, of which we have had a surfeit for many years.

Three things stand out as important: first, the need to determine the percentage of the national income that is being applied to the purposes noted by Faxon; secondly, the necessity for increasing national production so that sufficient income is available to meet the cost of the health service; and thirdly, the requirement that the purchasing power of the pound is such that the cost of medical service may be fully defrayed, whether by a system of individual contribution or by a system of taxation. To hold the scales evenly in the allocation of the national income we need a court of economic justice.

Discussion on the Responsibility for the Maintenance of an Efficient Service.

Quite a number of bodies are concerned in a variety of ways with the problems of the provision of surgical care in the State. These are: (*a*) the Parliament of Queensland, (*b*) the University of Queensland, (*c*) the Queensland Medical Board, (*d*) the Post-Graduate Medical Education Committee of the University of Queensland, (*e*) the Royal Australasian College of Surgeons, (*f*) the Queensland Branch of the British Medical Association, (*g*) the Brisbane and South Coast Hospitals Board, (*h*) various agencies that are responsible for the services ancillary to surgery. Parliament makes the laws relating to the practice of surgery. The University provides for the training of the undergraduate leading to graduation as a bachelor of surgery. The Medical Board is responsible for the administration of the law. The Post-Graduate Committee has the duty of arranging post-graduate surgical education. The British Medical Association and the Royal Australasian College of Surgeons are both concerned with the promotion of the science and art of surgery. The Brisbane and South Coast Hospitals Board may under statute provide facilities for surgical education. There are important ancillary services which perform a number of functions, such as provision of a blood transfusion service

by the Red Cross Society, provision of convalescent hospitals *et cetera*.

It will be readily seen, then, that improvement in the surgical services and the better education of the recruits joining the ranks of the service will depend upon the action taken by any or all of these bodies and by the success they obtain in their efforts at cooperation and collaboration.

There are two outstanding phenomena in the history of the development of the surgical service in Australia. Firstly, the Australian medical schools have produced thousands of graduates whose training and whose native ability have been such that the standard of surgical service they have rendered to the community throughout the length and breadth of the land has been of a very high order, and secondly, the greater part of this training has been provided by teachers in the medical schools, including honorary surgeons who have carried out their work in voluntary hospitals in the various States.

Excellent as this service has been, there has been no time when it was not capable of improvement, and there is evidence to show that at the present moment there is a very great need to take steps to improve our surgical services, particularly as it affects the training of new personnel.

This desire for improvement in surgical service is not confined to Queensland or to Australia. Thus Dr. Frank Glenn, writing in *The New England Journal of Medicine* of March 27, 1937, states that

> The standards of surgery established by the American College of Surgeons is sound, but there are not enough positions in the hospitals that provide these facilities whereby the standards can be efficiently fulfilled.

Partly as a result of the recent World War Queensland lacks trained surgeons who are able to satisfy the standards laid down as necessary for registration as a specialist in one or other of the various branches of surgery. In the past, general practice was the training ground of those who were later to practise surgery. In the country and in the metropolis, too, a great deal of surgical work has been done and is being done by the general practitioner surgeon. This has been the case since the very earliest days of settlement.

How long this state of affairs will continue it is difficult to say, but the effects of the new legislation in Queensland relating to specialism and the advent of the College of Surgeons are producing a type of surgeon whose training is of a different order from that of his predecessor. Even though in the cities there are still many men who have graduated to the ranks of surgery from general practice, more and more practitioners prepare to specialize as surgeons immediately after graduation without ever having done any general practice. It is not the purpose of this paper to offer comment on this question, other than to state that new ways of life and changed circumstances will have the effect of causing young graduates to favour the latter method of entry into the surgical ranks.

It is rather interesting to note that, both in the United States of America and in Canada, while there has been a great desire to improve post-graduate training in surgery, it has been very difficult to provide the means to this end. Thus Dr. Gallie, President of the American College of Surgeons for 1946, writes:

> What does it profit to tell a young graduate that he must serve a period of supervised training in an approved hospital extending over a period of three or four years if a sufficient number of such hospitals do not exist? A survey of the hospitals of Canada has shown that only a few can at present be approved for graduate training and the same lamentable state of affairs obtains in the United States as well.

It is apparent that the effort of the American College of Surgeons to lift the standards of post-graduate surgical education has not been entirely successful. This applies to Canada also, where, in spite of strenuous efforts to train first-class surgeons at the Toronto General Hospital, as is said by Dr. Gallie, "the real difficulty in planning a successful course is met within the Department of Surgery itself". Dr. Gallie speaks of "the need of a rebirth of the ideals and aspirations of the staff of the teaching hospitals", and goes on to say:

> I suggest to you that the ideal of the teaching surgeon should not be how skilful and impressive he can make himself by constant practice and repetition, but how many young men he can train to be as good as or better than himself. Only when such an ideal is established can we hope to supply the needs of our country.

The Future.

Parliament or, more correctly, the government of the day may wish the legal control of surgical practice to continue as at present without any restriction of the rights of those who practise surgery other than that of the right to use the title of specialist except under the conditions mentioned already.

It is too early yet to hazard an opinion on the effect of the introduction of the new medical curriculum as approved by the General Medical Council of the United Kingdom. The curricula of the Australian medical schools have been such that a very high percentage of graduates became general practitioner surgeons; so much so that there has been a great shortage in recent years of psychiatrists, pædiatricians and practitioners in the various departments of what is now called social medicine.

The new curriculum in Great Britain appears to be designed to remedy what may be described as a surgical bias. Whether it will do so it is difficult to say, but even now in a number of universities the amount of anatomy taught has been reduced and the opportunities for resident medical officers in their first year to obtain an extensive training in surgery are becoming fewer.

As a result of new legislation in Queensland the possession of a post-graduate degree or diploma is the necessary "open sesame" to the register of specialists. There are some extraordinary anomalies in relation to higher degrees and diplomas. Thus the Fellowship of the Royal College of Surgeons of England may be obtained within a few years after graduation and, I understand, the Fellowship of the Royal College of Surgeons of Edinburgh in even less time. The Master of Surgery degree of Queensland may be obtained soon after graduation by a person who is a good examinee, even though he has not had much experience in the practice of surgery. Diplomas in the surgery of the eye and diplomas in the surgery of the ear, nose and throat may be obtained in one or two Australian universities, the courses being less extensive and the examination less academic than that for the Master of Surgery degree. The Fellowship of the Royal Australasian College of Surgeons is probably the most difficult of all qualifications to obtain and is granted only after a number of years, during some of which the candidate must have served an apprenticeship in surgery. It is much more difficult to obtain a post-graduate qualification in general surgery than in the surgical specialties.

It would appear that there is room for the establishment of a post-graduate diploma in general surgery comparable to the diploma of membership issued by the Royal Australasian College of Physicians. Such surgical qualification could be taken after a candidate has spent two years working under supervision and after passing an examination in surgery and in the basic sciences. The examination in the latter subjects could be more practical and less academic than in the case of the primary examination for the degree of Master of Surgery.

Hospitals boards might be persuaded to give preference in filling appointments as medical superintendents of country hospitals to those holding such a diploma or a higher one.

Thus it will be seen that it is no easy matter to forecast accurately the future of surgery in Queensland. All that one can do is to discuss the possible changes that are likely to occur as a result of the action taken by the bodies noted above as having some responsibility or some interest in the practice of surgery in Queensland.

The government of the day may introduce legislation which will have important consequences. It is not certain whether this will be done by the Federal Government exercising its new powers alone or in conjunction with the State Government. The nature of such changes is purely

a matter for speculation, and is dependent on three interrelated factors—the wisdom of legislators, the wisdom of their advisers, and the force of public opinion in bringing about reform.

The future of surgery will be determined to a very large extent by the type of surgical training provided in the new medical curriculum. It is possible that the Federal Government may set up a body similar to the General Medical Council in England, to control medical education in Australia.

Many eminent members of the medical profession, particularly overseas, have voiced the opinion that, in order to produce the kind of practitioner required in these days, changes are necessary in the curriculum. Thus Lord Horder, writing in *The Lancet* of April 5, 1947, says:

> The scope of medicine must broaden. There is today hardly a field of human endeavour that does not require the physician's advice at some time or other. In the words of Sigerist, "no longer a magician, priest, craftsman or cleric, he must be more than a mere scientist. Scientist and social worker, prepared to cooperate in team work and in close touch with the people he serves, a friend and a leader, he will direct all his efforts towards prevention of disease and become a therapist when prevention has broken down—the social physician protecting the people and guiding them to a healthier and happier life".

Such an outlook, when translated into practice, will produce a different type of practitioner from the one we have known hitherto in Australia. Although up to the present we have had too much individualism and not enough teamwork (except in war-time), yet we must always retain a proportion of individualists.

Whether instruction in surgery in the medical curriculum in Queensland should be restricted to the extent that has been advocated in certain quarters is a matter of great importance. Changes likely to have far-reaching effects should not be lightly undertaken. It will be necessary to consider very carefully the surgical needs of the State, otherwise the defects we are attempting to remedy may be made worse.

Even without the possibility envisaged above there is already a great demand for post-graduate instruction and post-graduate training in surgery, a demand which it is not at present possible to meet. Whereas the Post-Graduate Medical Education Committee exists for the purpose of providing post-graduate education, it does not possess the means necessary to satisfy fully the requirements of all wishing to take advantage of it.

Hospitals, on the other hand, as at present organized, do not provide the necessary clinical, laboratory and other facilities for those preparing for examination for higher degrees or diplomas. Quite recently certain hospitals have offered to give free medical service to all members of the community requiring it. This work takes up a great deal of the time of both resident and visiting staffs of hospitals, making it almost impossible for them to engage in post-graduate teaching, let alone in research.

The future of surgical practice will be determined according to the adoption of one of two policies. The first is that of following the old *laissez-faire* methods, in which services have, like Topsy, merely grown. The second is the scientific method of careful collection of all relevant data and careful planning thereon. It is well to remember that, as Bacon said, "it is a solecism of power to think to command the ends and not endure the means".

In conclusion it may be said that if the latter policy is to prevail, then the various authorities concerned must realize that the following are fundamental issues.

1. The provision of facilities for post-graduate surgical education in Queensland is an urgent problem.
2. It would be best solved by the cooperation of the various bodies interested or concerned in the problem.
3. Post-graduate surgical education is a matter that affects Australia as a whole, and there should be set up, preferably by the Federal Government, hospitals for post-graduate teaching in each State.
4. These hospitals should have a permanent teaching staff who are not engaged in other duties nor in extensive undergraduate surgical teaching.
5. Arrangements should be made for visiting lecturers from other States and from overseas to be attached from time to time to the staffs of such post-graduate hospitals.
6. Post-graduate surgical education should not be confined to the metropolis. Those responsible for its conduct should be required to provide, as far as possible, in country hospitals similar facilities for such training.

SOME OBSERVATIONS ON ALLOXAN DIABETES IN THE RABBIT.

By ANITA BROWN, A. B. CORKILL, P. FANTL AND J. F. NELSON,

From the Baker Medical Research Institute, Melbourne.

THE sequence of events leading to the development of diabetes in animals receiving an intravenous injection of alloxan is now well recognized. In brief, there is a preliminary hyperglycæmic reaction which can be detected within fifteen minutes. On the average this lasts from four to five hours, although in a few isolated instances it may persist for from seven to eight hours. Following this hyperglycæmic phase, the blood glucose level commences to fall steadily and in the rabbit a profound hypoglycæmic state with convulsions and ultimate death will ensue. If glucose is administered at the appropriate time the animal will survive, but will, on recovery, be found to be diabetic.

Histologically, damage to the β cells of the pancreas can be detected within a brief interval after the injection of alloxan.[1] Most investigators are now of the opinion that the hypoglycæmic reaction is due to the release of preformed insulin from the degenerating β cells.

According to Hughes, Ware and Young,[2] if alloxan is administered to non-fasting rabbits and plenty of food (cabbage and oats) is available during the ensuing twelve hours, the fall in the blood sugar level is of lesser degree than that observed in the fasting animal, and hypoglycæmic convulsions do not occur. This has not been our experience. In experiments carried out on some 25 rabbits with the same dose of alloxan as that used by Young, namely 200 milligrammes per kilogram, severe hypoglycæmia invariably occurred and the intravenous administration of glucose supplemented by subcutaneous administration was required to alleviate it. Although all animals had free access to food, the time of onset and duration of hypoglycæmia showed considerable variations. In one instance a well-fed rabbit, to which glucose was given approximately eight hours after the injection of alloxan, developed hypoglycæmic convulsions some eighteen hours later and required further administrations of glucose.

The Initial Hyperglycæmic Response.

Goldner and Gomori[3] consider that the initial hyperglycæmic phase is due to a non-specific stimulation of the adrenal medulla, liberating adrenaline and thus producing hepatic glycogenolysis.

These conclusions were derived from experiments on rabbits, in which any possible influence of the suprarenal glands was annulled either by surgical removal or by the injection of formalin into the medulla. In contrast to this, Kirschbaum *et alii*, who also used rabbits, considered that the adrenal cortex was responsible for the initial hyperglycæmia.

Admittedly the adrenal cortex plays an important role in carbohydrate metabolism, but the injection of cortical extract does not have an immediate effect on the blood glucose content. The available literature[4][5] indicates that this hyperglycæmia does not occur until about four hours after the administration of cortical hormones and usually is prolonged for twenty-four hours.

The results of our own experiments support the view of Goldner and Gomori in so far that we consider that

alloxan, in common with several other compounds, such as cysteine, glutathione, *et cetera*, produces a non-specific hyperglycæmia by stimulation of the adrenal medulla.

Methods.

The blood glucose content was estimated by the method of Hagedorn and Jensen. Blood samples were taken from the marginal ear vein.

Alloxan was prepared from alloxantin by the method of Hartmann and Sheppard.[6] The alloxantin was prepared according to Nightingale.[7] The dose of alloxan was 200 milligrammes per kilogram of body weight and was injected intravenously.

The adrenalectomized animals were operated upon in two stages. At least fourteen days were allowed to elapse between the removal of the right and left glands.

Mention is made later of the complicating influence of accessory cortical tissue, and in rats and in adult English hutch rabbits this is of considerable importance.

TABLE I.
Showing Blood Sugar Content in Milligrammes per Centum.

Rabbit Number.	Time (Hours).						
	0	1	2	3	4	5	6
1	115	111	129	125	122	122	118
2	117	111	111	120	138	120	117
3	120	133	135	125	125	138	135
4	113	117	111	119	127	131	—
5	119	129	128	120	128	121	—
6	93	102	110	112	111	115	—

It was found, however, that Australian rabbits did not survive bilateral adrenalectomy without the administration of cortical extracts, from which it would appear, strange as it might seem, that these Australian animals were not provided so adequately with accessory cortical tissue. Accordingly when Australian rabbits were used for experiments with alloxan this compound was injected forty-eight hours after removal of the second gland. In the case of English hutch rabbits there was no time limit concerning the injection of alloxan following removal of the second adrenal gland.

Details of Experiments.

The object of the following experiments was to determine the effect of alloxan on the blood sugar of (i) normal rabbits, (ii) adrenalectomized rabbits, and (iii) rabbits previously injected with ergotoxine.

Experiments with Normal Rabbits.

Apart from three animals, recently captured Australian native rabbits were used. Since these by no means possess the docile nature of English hutch rabbits bred in captivity, control experiments were carried out to eliminate the possibility that spontaneous fluctuations of the blood sugar level might influence the interpretation of the results found with alloxan. All animals were fasted for twenty-four hours and blood samples were then taken hourly. The results are shown in Table I.

Some slight variations in the blood glucose content do occur, but these are insignificant in comparison with the changes shown in Table II.

After a period of four days these animals were again fasted for twenty-four hours. A blood sample was taken and alloxan injected. Further blood samples were then taken at the intervals shown in Table II. All these animals showed a typical response to alloxan.

Experiments with Recently Adrenalectomized Rabbits.

Recently adrenalectomized rabbits fasted for twenty-four hours were used. These animals showed pronounced circulatory collapse following the injection of alloxan and considerable difficulty was experienced in obtaining blood samples. It was possible to obtain only one blood sample before the animals developed convulsions. The rabbits were sacrificed at the onset ot convulsions and a blood sample was taken from the severed jugular vein.

The rapid onset of hypoglycæmia in such animals is clearly shown in Table III.

TABLE III.
Showing Blood Sugar Content in Milligrammes per Centum.

Rabbit Number.	Time after Injection of Alloxan. (Minutes.)				
	0	30	60	70	90
10	124	84	—	44 Con.	—
11	92	70	42 Con.	—	—
12	90	87	—	—	27 Con.

"Con." denotes convulsions.

Experiments with Ergotoxine.

Ergotoxine abolishes the motor effects of the sympathetic system and adrenaline. Hence if ergotoxine annuls the initial hyperglycæmic effect of alloxan it is presumptive evidence that this reaction is due to stimulation of the adrenal medulla.

Two English hutch rabbits were injected intravenously with five milligrammes of ergotoxine ethanesulphonate (Burroughs Wellcome) after fasting for twenty-four hours. One hour later a blood sample was taken and alloxan injected. The results are shown in Table IV.

It will be noted that the usual initial hyperglycæmia is abolished. Despite repeated intravenous and subcutaneous injections of glucose solution these two animals died in hypoglycæmic convulsions.

Experiments with Rabbits Two Weeks After Adrenalectomy.

The complicating influence of accessory cortical tissue on experiments concerned with bilateral adrenalectomy

TABLE II.
Showing Blood Sugar Content in Milligrammes per Centum.

Rabbit Number.	Time after Injection of Alloxan. (Hours.)											
	0	½	1	1½	2	2½	3	3½	4	4½	5	5½
1	127	145	170	181	193	163	103	Con.	—	—	—	—
2	125	191	221	290	327	329	316	—	259	—	145	45 Con.
3	148	247	304	323	316	336	228	—	149	—	99	74 Con.
4	120	206	241	312	338	296	199	—	134	—	81	57 Con.
5	136	251	—	327	360	360	348	188	70	Con.	—	—
6	138	—	—	253	—	—	180	—	—	34 Con.	—	—

"Con." denotes convulsions.

is now well recognized. Verzar[8] has called attention to this in adult rats and we have reported that adult rabbits survive for periods up to six or eight months following bilateral adrenalectomy. In view of this, the following experiment, although by no means conclusive, supports the view that the adrenal cortex is not implicated in the initial hyperglycæmic response to alloxan.

TABLE IV.
Showing Blood Sugar Content in Milligrammes per Centum.

Rabbit Number.	Time after Injection of Alloxan. (Minutes.)					
	0	15	30	60	120	150
16	120	119	121	74	—	37 Con.
17	121	109	90	77	32 Con.	—

"Con." denotes convulsions.

An adult English hutch rabbit was adrenalectomized in two stages. Two weeks later alloxan was injected intravenously and hyperglycæmia did not occur (Table V).

This animal was still alive three months after the injection of alloxan. No special salt-rich diet was required to maintain life.

TABLE V.
Showing Blood Sugar Content in Milligrammes per Centum.

Time after Injection of Alloxan. (Minutes.)				
0	10	20	30	60
99	99	95	85	47

The Role of the Kidney in Alloxan Diabetes.

Jimenez-Diaz, Grande-Covian and De Oya[9] consider that for alloxan to exert its diabetogenic effect it must first pass through the kidney and while it is so doing a substance is produced which is responsible for the usual phenomena observed. These conclusions were based on the fact that, when the renal pedicles were clamped in dogs for ten minutes before the injection of a diabetogenic dose of alloxan, the usual response did not occur.

Duff *et alii*[10] repeated this type of experiment on rabbits, but could not confirm the findings of the former workers. We were also investigating this problem when the results of Duff and his colleagues appeared. Since our experiments on rabbits fully agreed with their own work we did not proceed further.

The Fate of Alloxan in the Body Fluids.

According to Archibald[11] alloxan is rapidly destroyed in whole blood and plasma. The factors influencing this are the pH of the medium, sulphydryl compounds and amino acids. From our own experiments it is considered that the hydrogen ion concentration is of great importance. If this is on the alkaline side alloxan is hydrolysed to alloxanic acid, whilst if the pH is low this hydrolysis is retarded.

In some experiments alloxan was added to normal human serum of pH 8·0, to give a 1% solution; almost immediately the pH fell to 6·8 and had dropped to 5·8 at the end of twenty minutes.

If two millilitres of the alloxan-serum mixture were injected intravenously into rats, at varying intervals up to twenty-five minutes after incubation, the usual alloxan response occurred. Similar results in respect of fall in pH and persistence of diabetogenic activity were found when alloxan was incubated with phosphate-bicarbonate buffers having an initial pH of 8·0.

Alloxan when injected intravenously reaches the pancreas within a few seconds, but it is possible that in this short time an appreciable amount is broken down. However, in the pancreas the intracellular medium is of an acid pH,[12] so that the breakdown is inhibited and sufficient alloxan is present to exert a destructive effect on the β cells.

References.

(1) George Gomori: "The Histology of the Normal and Diseased Pancreas", *Bulletin of the New York Academy of Medicine*, Volume XXI, 1945, page 99.
(2) Henry Hughes, L. L. Ware and F. G. Young: "Diabetogenic Action of Alloxan", *The Lancet*, Volume I, 1944, page 148.
(3) M. G. Goldner and George Gomori: "Alloxan Diabetes", *Proceedings of the American Diabetes Association*, Volume IV, 1945, page 87.
(4) C. N. H. Long, B. Katzin and Edith Fry: "The Adrenal Cortex and Carbohydrate Metabolism", *Endocrinology*, Volume XXVI, 1940, page 309.
(5) R. L. Zwemer and Ruth C. Sullivan: "Corticoadrenal Influence on Blood Sugar Mobilization", *Endocrinology*, Volume XVIII, 1934, page 730.
(6) W. W. Hartmann and O. E. Sheppard: *Organic Syntheses*, Volume XXIII, 1943, page 3.
(7) Dorothy Nightingale: *Organic Syntheses*, Volume XXIII, 1943, page 6.
(8) F. Verzar: *"Die Funktion der Nebennierrinde"*, Springer, quoted by E. J. Conway and D. Hingerty: "The Influence of Adrenalectomy on Muscle Constituents", *Biochemical Journal*, Volume XL, 1946, page 561.
(9) C. Jimenez-Diaz, F. Grande-Covian and J. C. De Oya: "Alloxan Diabetes and Kidney Function", *Nature*, Volume CLVIII, 1946, page 589.
(10) G. Lyman Duff, Donald Wilson and Gardner C. McMillan: "The Renal Factor in Alloxan Diabetes", *Nature*, Volume CLIX, 1947, page 575.
(11) R. M. Archibald: "Methods for Determination of Alloxan Together with Observations of Certain Properties of Alloxan", *The Journal of Biological Chemistry*, Volume CLVIII, 1945, page 347.
(12) R. Chambers: *Bulletin of the National Research Council*, Number 69, 1929 (National Research Council of the National Academy of Science, Washington, D.C.).

THE GUTERMAN REACTION IN CLINICAL PRACTICE.

By E. M. A. DAY,
Fairfax Institute of Pathology, Royal Prince Alfred Hospital, Sydney,
and
L. J. CAINS,
Fellow in Obstetrics and Gynæcology, King George V Memorial Hospital, Sydney.

A RELIABLE laboratory test for the early diagnosis of pregnancy, which does not necessitate the use of animals, has long been recognized as a desirable aid to medical practice, and from time to time several such tests have been suggested. For the most part these have been based on the presence in the urine of increased amounts of substances not specific for pregnancy, and have not proved sufficiently reliable. Recently Guterman[1] has suggested that the increased amount of pregnandiol in the urine in the early weeks of pregnancy might be used as the basis of a diagnostic test, and to this end he has adapted the technique of Astwood and Jones[2] for the determination of pregnandiol, basing the results on a qualitative colour reaction, on the assumption that the amount of pregnandiol in the urine of non-pregnant women is not sufficient to give the reaction. He also suggests that as repeated miscarriages have been shown to be associated with insufficient progesterone secretion, this test might be used as a prognostic aid in pregnant women, subject to dyskiesis. Furthermore, the pregnandiol level in the urine falls after the death of the fœtus, whether the products of conception are expelled or retained, so that the test could be useful in determining the presence or absence of a living fœtus in cases in which this might be difficult clinically, and, used in conjunction with the Aschheim-Zondek or Friedman test, in the diagnosis of hydatidiform mole. Guterman gives tables showing the

results of the test in the early diagnosis of pregnancy, in the diagnosis of fœtal death, and in the prognosis of incomplete or habitual abortion.

In the hope that this test might prove a useful adjunct to our laboratory routine, several series of pregnandiol estimations have been carried out by means of the Guterman technique. In the earlier cases the method described in the original paper was followed exactly, but when a number of "false positive" results had been obtained, we further purified all the reagents used by methods described by Guterman in a second paper.[3] Impure sulphuric acid was found to be a potent source of error.

The first series of tests was made on the specimens of urine which were submitted for the Friedman test. Eighteen such tests were carried out. No selection was made, the specimens of urine simply being accepted in the order in which they came into the laboratory. The Friedman tests gave nine positive results, eight negative results and one doubtful result, and the Guterman tests fifteen positive results and three negative results. In all these cases subsequent events proved the Friedman reaction to be correct. The doubtful result was given by an obese patient who always had irregular menstrual periods and in whom the size of the uterus did not agree with the period of amenorrhœa. A subsequent Friedman test produced a positive reaction and the patient was found to be pregnant. The Freidman and Guterman reactions were in agreement in eleven cases (nine positive and two negative results). The Guterman test produced a negative result in one case in which the Friedman test produced a positive reaction, and a positive result in six cases in which the Friedman test produced a negative result. In one of these cases the test was a follow-up test on a patient who had had an hydatidiform mole removed six months previously. The pregnant patient whose response to the Guterman test was negative did not miscarry.

TABLE I.
Results of Guterman Tests in Six Groups of Patients.

Series.	Number of Tests.	Result Correct.	"False Positive."	"False Negative."
Comparison with Friedman test	18	11	6	1
Series of special cases	34	22	8	4
Known pregnancy	13	10	Nil	3
Known non-pregnant women	4	3	1	Nil
Virilism	2	2	Nil	Nil
Male urine	17	9	8	—
Total	88	57	23	8

Thirteen tests were carried out on normal pregnant women attending the ante-natal clinic; ten of these gave positive results, three gave negative results. One of the patients who gave a negative response later developed toxæmia of pregnancy; tests were then performed on three other women suffering from toxæmias of pregnancy, and these results were all positive. Both the negative results were from women in the eighth week of pregnancy, when the pregnandiol excretion should be at a maximum. Neither of these women miscarried.

A series of 40 examinations on 29 patients with various conditions in which the test might give valuable information was then carried out. The results are given in Table II. A check of the after-history of 24 of these patients showed that the result of the Guterman test had been correct in 22 of 34 examinations and had been a "false positive" in eight instances and a "false negative" in four instances. The results of six tests are not given in the table, as no further information about the patients could be obtained, so that the validity of the results could not be checked. One patient of the group of dyskiesis gave a negative result at the tenth week of pregnancy, but later gave positive results at intervals of two weeks on six occasions. She had a normal pregnancy. The other three patients in this group who gave responses to the Guterman test did not miscarry. Three women who were not pregnant gave a positive reaction. Among patients with threatened abortion, one who later miscarried gave a positive result which became negative at the actual time she miscarried. Both of two patients who were thought to be carrying a dead fœtus gave positive results; one of these later gave birth to a living child; the other was delivered of a dead fœtus. Of two patients found to have an hydatidiform mole, one gave a positive and one a negative result. A positive result was obtained after abortion from two of four specimens of urine tested.

Urine from two patients with virilism, a child and an adult, was examined, with negative results. From four non-pregnant women one positive result was obtained.

A series of 17 tests on 11 male patients was carried out. The first three negative results were followed by two successive positive results—one from a man with hepatitis, the second from a man suffering from lead poisoning. At this stage a determined effort to eliminate possible errors in technique was made. Double precipitations by alkali in methyl alcohol were carried out even when the filtrate was colourless; varying types of filters were used; only redistilled acetone toluene and aldehyde-free alcohol were used, with sodium hydroxide and sulphuric acid of analytical reagent quality. In twelve subsequent tests on six male patients, four strongly positive results, two doubtfully positive results and six negative results were obtained.

Since his first communication in 1944, Guterman has published a second paper warning against "false positive" results which may be given by impure reagents. We have observed the precautions he stressed in the purification of our reagents. In a recent paper Reinhart and Barnes[4] report an error of 25% with this test; they regard the reaction as definite and suggest that its diagnostic failure may be due to variations in progesterone metabolism in normal pregnant and non-pregnant women. The results given above suggest that the reaction may not be specific for pregnandiol, as it has been elicited in male urine.

TABLE II.
A Detailed Analysis of a Series of Special Cases.

Diagnosis.	After History.	Number of Cases.	Number of Tests.	Result.		Correct.	"False Positive."	"False Negative."
				Positive.	Negative.			
Pregnant. Dyskiesis	Normal pregnancy.	9	16	12	4	12	Nil	4
? Pregnant	Not pregnant.	2	3	3	Nil	Nil	3	Nil
Threatened abortion	Normal pregnancy.	2	2	2	Nil	2	Nil	Nil
Threatened abortion	Miscarried.	3	5	1	4	4	1	Nil
? Dead fœtus	Normal pregnancy.	1	1	1	Nil	1	Nil	Nil
? Dead fœtus	Dead fœtus.	1	1	1	Nil	Nil	1	Nil
Hydatidiform mole	——	2	2	1	1	1	1	Nil
Post-abortal	——	3	4	2	2	2	2	Nil
Total		23	34	23	11	22	8	4

(3) Guterman, H. E., Journal of Clinical Endocrinology, 1947, 7: 1.
(4) Reinhart, J. B., and Barnes, A. C., Journal of Clinical Endocrinology, 1947, 7: 1.

Summary and Conclusions.

The determination of the pregnandiol in the urine by the method of Guterman has been used in a series of cases. In this laboratory it has not proved sufficiently reliable for the diagnosis of pregnancy or for prognosis in dyskiesis or in threatened abortion.

The total error in this series is 36%—27% "false positive" reactions and 9% "false negative" reactions.

It is suggested that the test may be non-specific, as eight positive results were given by urine from men.

Acknowledgements.

Part of the expense of this work has been defrayed by a grant from the King George V and Queen Mary Maternal and Infant Welfare Foundation.

References.

(1) H. S. Guterman: "Human Pregnancy Test Based upon the Color Reaction of Pregnandiol in Urine", *Journal of Clinical Endocrinology*, Volume IV, 1944, page 262.

(2) E. B. Astwood and G. E. Seegar Jones: "A Simple Method for the Quantitative Determination of Pregnandiol in Human Urine", *The Journal of Biological Chemistry*, Volume CXXXVII, 1941, page 397.

(3) H. S. Guterman: "Further Observations on the Value of the Pregnandiol Test for Pregnancy", *Journal of Clinical Endocrinology*, Volume V, 1945, page 407.

(4) H. C. Reinhart and A. C. Barnes: "An Evaluation of the Guterman Pregnancy Test in Clinical Practice", *Journal of Clinical Endocrinology*, Volume VI, 1946, page 664.

Reviews.

PROGRESS IN MEDICINE.

IN the preparation of the twelfth edition[1] of their popular manual on recent advances in medicine, Dr. Beaumont and Professor Dodds have omitted sections dealing with the kidneys and with diphtheria, but have added new sections dealing with antibiotics and other recent additions to the therapeutic armamentarium. In addition many alterations of the text have been made in order to bring matters up to date.

The use of phthallylsulphathiazole is not mentioned amongst chemotherapeutic substances, and there are, unfortunately, no recommendations regarding the use of streptomycin. In any manual there must inevitably be a time lag so that conclusions regarding the efficacy of recent therapeutic measures cannot be included at the time of submission for publication. The antibiotics derived from penicillin and other sources are discussed in adequate detail.

Vitamins are grouped together, folic acid and *p*-aminobenzoic acid being included with the *B* group. "Dicumarol" is included in this chapter instead of being discussed in conjunction with the hæmatopoietic system which appears to be a more appropriate place, because of the hyperprothrombinæmia produced by its ingestion and the importance of vitamin *K* in the formation of prothrombin. It is stated that vitamin *K* is useless in restoring prothrombin time to normal when "Dicumarol" has been used, but the dose of vitamin which should be used in such cases has been shown to be in the vicinity of 50 to 75 milligrammes to be effective.

Glycosuria and *diabetes mellitus*, affections of the liver including infective hepatitis and homologous serum jaundice, the principles of treatment of peptic ulcers, and the treatment of Addison's disease are dealt with in detail. The use of thiocyanates in hypertension is described and the use of cardiotherapeutic measures is carefully presented.

Primary atypical pneumonia is now included in the chapter dealing with the lungs. Amongst the indications for induction of artificial pneumothorax, bronchiectasis, interlobar empyema and localized pulmonary abscess will not be accepted by many experienced physicians. It is regrettable that reference is not made to Broch's studies of the anatomy of the bronchial tree and to the importance of his work on broncho-pulmonary segments in relation to diseases of the lungs and bronchi.

Thiouracil, electroencephalography and diseases of the hæmatopoietic system receive adequate attention.

Throughout, excellent descriptions of technical procedures are given which cannot fail to be of value to the practising physician, and laboratory tests are described with detail and clarity that amply justify use of the book in a biochemical laboratory. A full chapter is devoted to urine analysis and to tests for estimation of constituents of the blood, including creatinine, non-protein nitrogen, proteins, prothrombin, alkaline and acid phosphatase, abnormal blood pigments, blood sugar, sulphonamide drugs, cholesterol, calcium, potassium, sodium, chlorides, inorganic phosphate and thiocyanates.

If the reader expects to have a heterogeneous collection of disconnected facts or a trite summary of the literature covering the whole field of medicine which has appeared since the last edition in 1943 he will be disappointed. On the other hand, anyone desirous of reading a concise account of progress in the study of important medical conditions and a brief critical review of the more recent additions to knowledge will be satisfied. The excellent bibliographies at the end of each chapter provide the more advanced student with the means of adding detailed knowledge of those aspects in which he is more particularly interested.

[1] "Recent Advances in Medicine: Clinical Laboratory Therapeutic", by G. E. Beaumont, M.A., D.M. (Oxon.), F.R.C.P., D.P.H. (London), and E. C. Dodds, M.V.O., D.Sc., Ph.D., M.D., F.R.C.P., F.R.I.C., F.R.S. (Edinburgh), F.R.S.; Twelfth Edition: 1947. London: J. and A. Churchill, Limited. 8" × 5¼", pp. 434, with illustrations. Price: 21s.

INHERITED DISEASES IN ANIMALS AND HUMAN DISEASES.

IN his foreword Sir Henry Dale states truly that Dr. Grüneberg's "Animal Genetics and Medicine"[1] is a most valuable review of information which provides food for thought to any worker in medicine who desires a better understanding of the mechanisms of heredity as applied to human disease. And, indeed, the general reader will be surprised at the part that inherited qualities may play in the occurrence of human pathological lesions and will be delighted at the ingenuity displayed by geneticists in ascertaining the sequence of events that may result from a particular gene mutation. Experimental genetics, mostly impossible with human beings, is reaping a rich harvest when applied to such rapidly breeding animals as mice, rats, guinea-pigs and rabbits. Such monstrosities as anencephaly or encephalocele in the mouse, eye and foot anomalies, epilepsy, fidgets, waltzing, deafness, dwarfism, non-eruption of the teeth, hare-lip, kidney anomalies, skin changes and almost a multitude of other departures from the normal can be shown in many cases by interbreeding to be based on gene mutations. Moreover, the fact that these small animals breeding so quickly can be sacrificed at any period of gestation enables the sequence of events that have led to any particular results to be followed. By working backwards, experimental geneticists can trace each step till the first departure from normal is reached. This may cause lesions to appear in far-distant situations and these latter may result in still further tertiary changes in other parts. Thus in congenital hydrocephalus of the mouse, a mutation causing a transitory cartilage anomaly may affect the basi-cranial cartilage which is shortened, and from this follow hydrocephalus, and as consequences of the latter failure of development of the flat bones of the skull, absence or even duplication of certain sensory hairs on the face from stretching of the skin, open eyelids at birth from the same cause, and hæmorrhages in the brain. Such analyses of the sequence of events are one of the features of this work, and experimental geneticists are also able, in the material at their command, to detect and study "modifying genes", that is, genes which have no obvious effect of their own but modify the effects of another gene.

The first chapter deals with inherited disease in general. The second gives us some idea of the advantages of studying inherited diseases in animals if we are to unravel the nature of quite a number of human pathological conditions. Chapter III illustrates the principles of developmental genetics. The succeeding chapters deal with the central nervous system, hearing, the eye, the endocrine organs, the blood, the skeleton, the digestive tract, the uro-genital system, the skin, serology and disease resistance. The attention of hæmatologists should be directed to the siderocytes described and discussed in Chapter XVI. These are red cells containing a few granules of hæmosiderin. They are, apparently, aging red cells and appear in large numbers in stored blood. A massive siderocytosis can be produced by hæmo-

[1] "Animal Genetics and Medicine", by Hans Grüneberg, Ph.D., M.D., with a foreword by Sir Henry Dale, O.M., G.B.E., F.R.S.; 1947. London: Hamish Hamilton Medical Books. 7½" × 5¼", pp. 308, with many illustrations. Price: 21s.

lytic agents such as phenylhydrazine. They may occur in man, but usually in small numbers, in chronic uræmia, in some microcytic anæmias, in biliary cirrhosis with chronic cholecystitis in a youth (up to 15%), and in acholuric jaundice (at one time in one patient nearly all the red cells were siderocytes).

In the chapter on serology the author states that the "antigenic structure of the rabbit should . . . be a warning against the abuse of the transfusion technique, which, in some hospitals, is now increasingly utilized for the indiscriminate 'treatment' of all kinds of moderately severe anæmias, where it is indicated and where it is not".

Dr. Grüneberg gives his conclusions in his last chapter followed by a bibliography of 27 pages. The final paragraph of the text is as follows: "The study of inherited diseases in animals is a new branch of medical science. If this book will convince a few people of the value of this new tool for ætiological studies, it will have fulfilled its purpose." No one can read "Animal Genetics and Medicine" without being convinced of the value of this study, and we recommend its perusal to all who have an interest in the ætiology of disease.

CANCER.

"CANCER: DIAGNOSIS, TREATMENT AND PROGNOSIS" is a composite, attractive work of just over one thousand pages, the authors, L. V. Ackerman and J. A. D. Regato, being pathologist and radiotherapist respectively.[1]

The subject of cancer is approached from every angle, historically, diagnostically, statistically; its prognosis and treatment and the results of treatment are discussed. Cancer occurring in every part of the body is classified and considered. There are nearly eight hundred illustrations—plain and coloured—of excellent quality. The authors have drawn upon the help of well-known workers in the field of cancer, more particularly from those attached as surgeon specialists and therapeutists to cancer clinics. Many clinicians no doubt will be surprised to find Hodgkin's disease and leuchæmia classified with the cancer group.

The great menace of cancer to human life is pointed out when it is stated that 170,000 people died from cancer in 1940 in the United States, which of course is no indication of the incidence of cancer. It is considered that the medical student and resident medical officer are not properly trained in the diagnosis and treatment of cancer, that comprehensive courses of instruction by experts are desirable and that there should be expert tumour pathologists and radiotherapists attached to all hospitals.

In the treatment of cancer early diagnosis is the most important factor. The choice and means of attack should be left to those specially trained for the job. Team work between surgeon and radiotherapist is essential as isolated workers are apt to perpetuate mistakes.

The fallacies of statistics are pointedly referred to. Biopsy in all cases is advised before any treatment is undertaken and many pitfalls from neglecting to do this are described. In short, the approach to cancer surgery requires certainty in diagnosis. Frozen sections should be used sparingly as paraffin sections are considered superior. Continuous spinal anæsthesia with ephedrine and "Pentothal Sodium" is advocated for major abdominal work. In all cases competent anæsthesia is essential as are pre-operative preparation and post-operative care. The cancer surgeon in effect is expected to be almost super-pathologist, amateur physicist, psychologist, statistician, surgeon and philosopher.

Radiotherapy as a curative measure must be on a par with radical surgery—an "all or nothing" undertaking with the difference that it is non-mutilating. Radium must now play second fiddle to X-ray therapy as a curative agent, but in many cases is still indispensable. Tumours suitable and unsuitable for radiotherapy are tabulated, but the dictum "once inoperable always inoperable" stands for both surgery and radiotherapy. The lymphatic supply and drainage for every organ of the body are described and illustrated by excellent diagrams. Photomicrographs of sections of most growths are shown. The references are almost legion—every part of the body affected by cancer is given an imposing list of references.

Approximately two hundred pages are devoted to cancer of the digestive tract. The high incidence of syphilis in association with cancer of the tongue is mentioned—namely 40%. Abdomino-perineal excision of the rectum as performed by Miles is advocated for cancer of the rectum. The statistics for the operability rate for cancer of the stomach are appalling, as are the figures for five-year survivals after gastrectomy. It is interesting to note the high incidence of gastric tumours in people dying from pernicious anæmia—in 211 autopsies there were 32 gastric tumours, 17 being cancer.

Every page is full of interest and the work is one of outstanding merit. Every member of the profession—the general practitioner, the laboratory worker, the therapeutist, the physician and the surgeon—will benefit from reading this work. The whole set-up of the book is attractive, the type is easy to read and the price is reasonable.

[1] "Cancer: Diagnosis, Treatment and Prognosis", by Lauren V. Ackerman, M.D., and Juan A. Del Regato, M.D.; 1947. St. Louis: The C. V. Mosby Company. Melbourne: W. Ramsay (Surgical) Proprietary, Limited. 9¾" × 7", pp. 1116, with many illustrations, some of them coloured. Price: 150s.

PHYSICAL TREATMENT OF INJURIES OF THE BRAIN.

IN the preface of her book on physical treatment of injuries of the brain, Miss Hern states that the popular conception of physiotherapy is that the patient enjoys a comforting treatment and the physiotherapist does all the work.[1] This is true in some countries and indeed in many of the "quack" parlours which have exploited the public all over the world. Much of the physiotherapy used in public hospitals is given to relieve the many sufferers from crippling and painful arthritis. As far as this is concerned, the above statement is possibly justified. On the other hand, any patient with a post-traumatic or post-operative condition requiring rehabilitation is treated actively and full scope is given to exercises and reeducation.

In the service hospitals the physiotherapists took over first; they were followed or accompanied by the occupational therapist and finally came the physical training and re-education personnel. This proved in all countries to be most valuable and reviews and reports of these activities have been numerous in all medical literature.

The physical treatment of injuries of the brain is not greatly different from other serious injuries, except that the damage in many cases is permanent and there is not always the full cooperation of the patient because of the consequent mental changes.

The programme in this book, as set out, gives a concise and readable account of accepted teaching and practice in most schools of physiotherapy with some useful new tricks, which are valuable.

In Chapter 1 the position for the first steps in walking is good. It gives good control with consequent confidence of the patient.

Chapter 3 deals with ball exercises in detail. The size of ball and type of exercise used must be at the discretion of the physiotherapist. Some of the exercises are particularly hard and require great skill and much practice. These exercises would be given in the usual physical training classes in rehabilitation. Some of them would tax the skill of the most adept. The application of the use of balls in exercises is not universally taught. The emphasis given to them is worth while.

Chapter 4 illustrates the importance of a good gymnasium with plenty of space. Chapter 5 shows how ordinary simple gadgets about a department can be adapted for use in an exercise. With increase of proficiency the patient becomes encouraged and may, with the further help of occupational therapy, go on to greater achievements.

It is only in special hospitals that one would come in contact with a sufficient number of patients with post-concussional syndrome to justify the class work mentioned in Chapter 6 and few civilian hospitals have either staff or room for class work.

The design of the walking machine illustrated in Figure 31 is an improvement on the usual type seen.

If this book stimulates those working on such injuries to get the best out of the patient, then it has served a useful purpose. The medical man needs to realize that much can be done to make the patient less of a burden on kindly and equally unfortunate relatives. With his knowledge of the type of lesion and the mental and economical factors in the case, he should, with the help of this book and an intelligent and efficient physiotherapist, be able to organize a programme of real benefit to all concerned. Miss Hern must be congratulated on her work in preparing such a handy guide for any physiotherapist doing rehabilitation of the injured.

[1] "Physical Treatment of Injuries of the Brain and Allied Nervous Disorders", by K. M. Hern, M.C.S.P., with a foreword by Air Vice-Marshal Sir Charles P. Symonds, K.B.E., C.B., D.M., F.R.C.P.; 1947. London: Baillière, Tindall and Cox. 9" × 6½", pp. 104, with many illustrations. Price: 10s. 6d.

The Medical Journal of Australia

SATURDAY, FEBRUARY 14, 1948.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

PUBLIC HEALTH IN WESTERN AUSTRALIA.

FROM time to time reference is made in the editorial columns of this journal to the reports of medical health departments and of other government departments which in certain States have sections of medical activities. The issuing of these reports is useful in that the members of the community are given means of discovering what the government is doing, or more often is not doing, for their health and general well-being. There are some disadvantages, and the chief of these is that departmental reports are not widely circulated, and that people who want to know have to go to some trouble if they want to learn the truth. Again, as has been often explained, departmental reports invariably take a long time before publication is finally effected. As a general rule this does not matter from the point of view of criticism. The critic does not run much risk of being told: "Oh! Yes, that is ancient history—all those anomalies have long been rectified." More often than not the departmental head is left to bewail an accumulation of woes and deficiencies and his chief concern is to devise a new way of singing his song, a fresh accompaniment or a striking obligato that will not only catch the ministerial ear, but will strike a sympathetic chord in the ministerial soul and turn the solo into a duet. The departmental head who can sing, "Come, I will show you the flowers in my garden", is fortunate beyond words. A departmental dirge on health from Western Australia has been sung more than once. The latest is somewhat more elaborate than usual; the author is Dr. Cecil E. Cook, and he deals with the year 1946, the first year of his holding the office of Commissioner of Public Health. Western Australia has been much in the public eye lately, and before this year is ended will become known at first hand to medical practitioners of all the Australian States. For this reason, if for no other, we propose to set out the main features of Dr. Cook's plaint.

The first subject with which Dr. Cook deals is administration. He points out that a great deal of the time of the Commissioner is devoted to trivialities of routine, and that for this reason he cannot give sufficient attention to the fundamentals of epidemiology and disease control. To remedy this, professional assistance to the Commissioner is suggested. An additional advantage of such an arrangement is not mentioned—the appointment and supervision of an assistant to the Commissioner would mean that when the Commissioner retired the State would have at hand a man who knew its needs and whose ability was known and tried. Dr. Cook's second comment has to do with the administration of the *Health Act* by the local authorities. This, he holds, leaves much to be desired. In spite of allowances which may be made on account of the war and the subsequent period of readjustment, there remain a number of "inexcusable defects" in administration. Four reasons are suggested for these defects: (*a*) failure to recognize responsibilities under the act; (*b*) inability to place the health function in its proper priority in relation to other administrative functions; (*c*) lack of knowledge of the fundamental principles of health administration; (*d*) a tendency to defer to a central authority, whether State or Commonwealth, embarrassing functions and irksome obligations which Parliament intended when the act was formed should remain with the local board of health—in other words a tendency "to pass the buck". Three "conspicuous" shortcomings of the defaulting boards are named. The first is a dependence upon the Department of Public Health for those necessary routine health inspections without which no local board can inform itself as to the epidemiological situation obtaining in its area at any time. In this regard it is stated that one municipality and 75 out of 114 local health authorities (66%) have no qualified health inspectors. The second shortcoming is a failure through "apathy, self-interest or other cause" to take action towards the correction of defects to which inspectors direct attention. The third is a failure of boards to provide themselves with powers available in model health by-laws drafted for their guidance by the central authority.

Looking for causes of these shortcomings, Dr. Cook finds a wrong psychological attitude which has developed among local authorities under the influence of various factors. This seems rather a kind way of looking at the faulty business. The set-up of the local health authorities needs alteration. These authorities are roads boards which have had responsibilities in the matter of health thrust upon them. It is certainly a "novel role" for the members of these boards. One can easily understand that the members of many roads boards "continue under the impression that health administration begins and ends with the institution of a sanitary service and the collection of a rate to pay for it". And even then we read in the section of the report dealing with sanitation that in only 50% of the municipalities and 38% of the roads board areas is an adequate service provided for the disposal of household waste. Not only may we conclude that the persons holding office as members of roads boards are quite unfit to have anything to do with health administration, but the areas over which the roads boards exercise control are not suitable as health areas. Dr. Cook states that they are in many cases wholly unsuitable. Thus, a closely settled area with common administrative problems under the *Health Act* may overlap from a municipality into a contiguous roads board area. Or a country town may be predominantly in one roads board area and partially in another. In cases such as these cooperation between contiguous authorities does not always occur; the result

is "friction, obstruction and the defeat of most attempts at improved control". Sometimes the less pecunious neighbour, in its determination to retain a valued rateable area, will bitterly resent and obstruct all attempts to transfer such portions of a town as lie within its own boundaries to the local authority controlling the major part of the urban area. Again, many of the roads boards covering extensive areas are but sparsely populated; in some instances great parts are quite uninhabited. In these instances the ratio of population to area may be so low that even the highest possible rating will yield insufficient money for health purposes. The result has been that in these areas there has been a tendency to use for road board administration money that has been collected as a health rate. This kind of arrangement can only be described as ridiculous. It is also pathetic. Dr. Cook states bluntly that education of the public in the principles of hygiene has been neglected. "This", he declares, "must be inevitable where the Local Authority is uninformed and where there is no technical adviser to impart the fundamentals of knowledge by precept or by coercion." Government departments, he insists, set an example of tolerated neglect. Describing defects in the provision of privies, he states that conspicuous among those which do not conform to local by-laws or to the first principles of sanitation are those of the Railway Commissioner, the Parks and Gardens Board, the Education Department, public hospitals and local roads boards themselves. The astounding statement is made that at 91 public schools the duty of night soil disposal is imposed upon the school teacher or the school children.

At the outset the report issued by Dr. Cook was described as a departmental dirge. There are some bright spots in it, but the present need is to emphasize the unsatisfactory basis on which much of the public health work has to be attempted. A year or two ago it was urged that a Royal Commission should be set up to survey the public health needs of Western Australia and to suggest ways in which those needs could be met. This has not been done. If a commission is merely to take evidence which will be put on one side, as so often happens, it would be better not to waste money on the effort. If the government would consider the setting up of a new framework to replace the present roads board patchwork, the step would be worth while. If nothing is done in the next few months perhaps some public spirited member of the medical profession will present at the congress in Perth next August a paper which can be used as a weapon to arouse public interest and indignation.

Current Comment.

KALA-AZAR.

DISCUSSION of kala-azar (the general infection form of leishmaniasis) may not seem very relevant in this country, but, in a recent report by Harry Most and Paul H. Lavietes[1] of thirty cases of the disease found among patients in an American hospital, it was pointed out that delay in diagnosis (which averaged ten weeks) was not due to difficulty in demonstrating the causal parasite (*Leishmania donovani*), but rather to lack of awareness of the possibility of kala-azar; once the disease was suspected the diagnosis was usually proved in a short time. It is further noted that the incubation period may be very long (at least nineteen months in one case), so that exposure to infection in a former environment may be overlooked; in this series fifteen cases originated in India and fifteen in the Mediterranean littoral.

The outstanding clinical features amongst these patients were fever and splenomegaly. In most cases the onset was acute with chills and fever. The fever is classically intermittent and striking charts are reproduced which show the not uncommon feature of two peaks occurring in the daily temperature curve; it is pointed out that this may be overlooked if the temperature is not taken frequently (especially at night) and charted. Occasionally the fever at onset was sustained; in some cases active fever was followed by remission and this in turn by another period of fever. Splenomegaly, often of great degree, was present at some stage in all cases and during the clinical onset of the disease in 27 out of the 30 cases. However, from some of the case records it is apparent that painless lymphadenopathy without fever, splenomegaly, leucopenia, or alteration in the serum proteins may be the only manifestation of the infection. The laboratory findings were helpful. Leucopenia was striking and developed early. The serum globulin fraction was increased and the albumin fraction depressed. Anæmia (mildly hypochromic or normochromic) was sometimes severe and was frequently accompanied by moderate thrombocytopenia. The erythrocyte sedimentation rate was usually, but not always, increased. Clot formation and retraction were commonly poor, presumably because of the thrombocytopenia.

The disease has to be differentiated from malaria, undulant fever, bacteriæmia or septicæmia, and primary diseases of the hæmatopoietic organs. The diagnosis is established by the demonstration of *Leishmania donovani* in smears or cultures grown from material derived from spleen, bone marrow, liver, lymph node or peripheral blood. Painstaking search of smears and prolonged attempt at culture growth are important. Most and Lavietes recommend that, if success is not obtained from investigation of bone marrow, spleen puncture should be performed. They describe their technique of spleen puncture in detail and regard it as a most reliable diagnostic procedure; uniformly positive results were obtained when this method of investigation was carried out (eighteen cases in all).

Antimony is recognized as the established agent for treatment of kala-azar; pentavalent compounds are preferred. Most and Lavietes recommend "Neostibosan" as the drug of choice, a minimum of five grammes (0·3 gramme given intravenously each day for seventeen days) being administered as initial treatment, or after relapse following treatment with "Neostam" or inadequate doses of "Neostibosan". If necessary larger doses of "Neostibosan" are subsequently given (0·5 gramme daily for twenty days), and if these fail "Stilbamidine" is administered. All of the thirty patients in the series were ultimately cured. Response to adequate specific therapy was dramatic; fever was quickly controlled and all signs and symptoms disappeared in periods varying up to six months. Observation to detect relapses is advised for at least six months after completion of treatment.

This is an interesting series of cases, and Most and Lavietes have made an exhaustive investigation of each case. Only the salient practical points have been mentioned here, mainly as a reminder that kala-azar exists. There is a great deal more detailed information in Most and Lavietes's paper for those interested.

[1] *Medicine*, September, 1947.

THE ADRENAL CORTEX.

IT is not long since endocrinology consisted mainly in the observation of the clinical effects produced by the excess or deficient activity of a particular endocrine gland. Today a good deal of light is being thrown on the detailed mode of action and interaction of the glands and of their internal secretions, many of which have been chemically

identified and even synthesized. C. N. H. Long,[1] Sterling Professor of Physiological Chemistry of Yale University, points out that the science of endocrinology is now concerned with the way in which the internal secretions regulate the metabolic process of the cells on which they act. He stresses the fact that "hormones do not initiate new patterns of cellular function"; they either facilitate or inhibit certain types of chemical transformation within the cells. The investigation of these processes—"biochemical endocrinology"—is a wide field just opening up. It is from this viewpoint that Long presents the results of some recent studies on the function of the adrenal cortex.

Dealing first with the chemical nature of the hormones secreted by the gland, he pays tribute to the work of Swingle and Pfiffner who first recognized the active principles in lipid extracts of the gland. As a result it was later appreciated that these active principles were steroids, as were other principles isolated, some having gonadal and some having no known biological activity. The amount of the active steroids in the gland was minute, but subsequently the partial synthesis both of dehydrocorticosterone and of 11-dehydro-17-hydroxy corticosterone from desoxy cholic acid was accomplished and made available valuable material for research and, potentially at least, for clinical use.

Long then discusses the question of the conditions under which the gland is called upon to secrete increased quantities of hormone. An essential factor in adrenal cortical activity has been isolated (in highly purified, if not completely pure, form) from the anterior lobe of the pituitary gland; it is a protein hormone now known as the adrenotrophic or corticotrophic hormone. When injected into animals it produces all the effects of the cortical hormones themselves; its only known action is the stimulation of the secretory function of the adrenal cortex, an effect produced in hypophysectomized animals by no other known agent. This, however, only pushes the problem back a step to the consideration of the mechanism that appropriately stimulates the pituitary gland. To investigate this some means is needed to determine the rate of secretion of the adrenal cortical hormones. It was found that the injection of adrenotrophic hormone into both normal and recently hypophysectomized rats decreased the cholesterol content of the adrenal by about 50% in three to six hours, the return to a normal level being very slow; the cholesterol content of other tissues was not affected. Further, injection of adrenotrophic hormone produced a prompt fall (to below 50%) in the level of ascorbic acid in the adrenal. Experience has shown that the changes in the ascorbic acid and cholesterol content of the adrenal may be used as indicators of cortical activity. It is thought that ascorbic acid is directly related to the secretion of the hormone and that cholesterol acts as a reservoir of the precursor of the hormone; this is supported by a recent report of the isolation from the gland of a biologically active steroid in which the steroid nucleus (presumably derived from cholesterol) is apparently linked to ascorbic acid.

The factor or factors influencing the anterior lobe of the pituitary to the production of adrenotrophic hormone cannot yet be stated with certainty, but Long considers that the response follows either a decrease in the blood level of cortical hormone or some other unknown changes in the composition of the blood traversing the gland. One well-established fact is of much interest, the finding that adrenaline increases adrenal cortical secretion. From his own experiments Long is of opinion that this effect of adrenaline is produced by stimulation of the anterior lobe of the pituitary gland, but he quotes the views of another investigator, Martha Vogt, whose experiments suggested that the adrenaline acts directly on the adrenal cortex. Subsequent work will doubtless decide this issue, but it is important to appreciate that the numerous conditions which stimulate the sympathetic nervous system and bring about the production of adrenaline also increase the output of cortical hormone. As it appears that conditions of stress result in an increased rate of utilization of cortical hormones in the tissues and so a fall in the blood level of the hormone, there is revealed a fine coordination between anterior pituitary, adrenal cortex and medulla designed to combat the otherwise harmful effects of stress.

On the question of the essential mechanism of action of the adrenal cortical hormones, Long admits that conclusive knowledge is very limited. It is fairly clear that they regulate the sodium, potassium and water balance by their influence on the rate of kidney tubular excretion and reabsorption of these ions and in this way control the shift of fluid and electrolytes between the various compartments of the body. There is evidence that the cortical hormones accelerate the conversion of tissue proteins to glucose and inhibit carbohydrate utilization by the tissues. By their capacity to accelerate in this way the catabolic phases of protein metabolism they retard the growth of growing animals; as the growth-promoting factor of the anterior lobe of the pituitary acts by promoting the retention of protein in the body, the importance of the pituitary gland is evident in both catabolism and anabolism of protein. Other functions of the cortical hormones are suggested by the observance of rapid fatigue of working muscles and inadequate intestinal absorption in association with insufficiency of the hormones. However, none of these findings indicate the mode of action of the hormone. It is especially clear that some essential factor is not yet understood from the fact that correction of disturbances in the sodium or carbohydrate metabolism of adrenalized animals by administration of these substances is not sufficient in itself to ensure survival; the animals cannot stand up to any degree of stress, and only the administration of cortical hormones can confer a normal resistance to stress on either adrenalectomized or hypophysectomized animals.

Perhaps the most interesting part of Long's paper is a summary of the results of work by White and Dougherty in Long's laboratory at Yale. From this it appears that the number of circulating lymphocytes is under pituitary-adrenal control; the injection of the cortical hormones or the adrenotrophic hormone into normal animals causes a rapid decrease in the number of lymphocytes in the blood. This reduction is brought about by a rapid lympholysis in the lymphoid tissues, liberating into the lymph and ultimately into the blood serum the contents of the lymph cells. One of these constituents is normal serum γ globulin; a second is probably serum β globulin. Thus intact cellular protein molecules are distributed through the body fluids to all parts of the organism, to be metabolized by the different tissues in a manner best suited to their requirements. Bearing in mind the association of the γ globulins with the specific immune bodies, White and Dougherty immunized animals to various antigens both with and without the injection of cortical hormones. In all cases the titre of the specific antibodies in the serum rose faster and to higher levels in the group receiving the hormone. Moreover, if the injection of both hormone and antigen was stopped and sufficient time allowed for the serum titre of antibody almost to disappear, the injection of a single dose of cortical hormone caused antibodies to reappear in the serum in a few hours to levels reached during the height of immunization. The same result followed stimuli causing adrenal cortical secretion. Long suggests that this apparent role of the adrenal cortex in the release of immune globulins in the immunized animal may have a parallel in the non-immunized animal, for cortical hormones release non-immune globulins in the latter. Perhaps, he suggests, the cortical hormones, released in response to stress (heat, cold, trauma *et cetera*), are able to liberate from the lymphoid elements into the circulating fluids substances that are vital to the cells for a successful defence against the distortion of their "internal environment". This is at the moment mere speculation, but a logical hypothesis that warrants further investigation. It will be of much interest to follow further developments, as the influence of the adrenal cortex is obviously great, and, although it has guarded its secrets more effectively than some other endocrine glands, keys for the locks are now appearing.

[1] *Bulletin of the New York Academy of Medicine*, May, 1947.

Abstracts from Medical Literature.

DERMATOLOGY.

"Pyribenzamine."

EARL D. OSBORNE, JAMES W. JORDON AND NORBERT G. RAUSCH (*Archives of Dermatology and Syphilology*, March, 1947) report the effects of "Pyribenzamine" on 122 patients presenting various cutaneous disorders and also the effect of the drug on weals produced by the intradermal injection of allergens into patients with atopic dermatitis. The average adult dose varied from 100 to 400 milligrammes daily; the average dose for children was half that amount. The authors state that the three most effective antihistaminic compounds developed to date are "Antergan", "Benadryl" and "Pyribenzamine"; various investigators report approximately the same degree of clinical benefit from each of the drugs to patients with skin conditions. Almost all patients with acute urticaria are relieved, about two-thirds of those with chronic urticaria are benefited, and somewhat more than one-half of the patients with chronic atopic dermatitis are improved. Three out of four of the authors' patients with *dermatitis herpetiformis* obtained relief. In two cases of severe physical allergy (one associated with sunlight, the other with cold) "Pyribenzamine" produced prompt and complete relief. There did not seem to be any correlation between the effect of "Pyribenzamine" on allergen-induced weals and the clinical course of the patient after receiving "Pyribenzamine". In the authors' opinion reactions to "Pyribenzamine" are minimal and seldom necessitate stoppage of the drug.

Cautery Drainage of Subungual Abscess.

T. S. SAUNDERS (*Archives of Dermatology and Syphilology*, August, 1947) states that collections of pus under the nail plate can be satisfactorily opened and drained, without anæsthesia, by applying a small heated cautery tip to the portion of the nail overlying the pus. In an instant a small opening is formed and the pus escapes. The immediate relief of pain is gratifying. The procedure is a modification of R. E. L. Holt's treatment of subungual hæmatoma. He heats a small wire to white heat and burns an opening in the nail plate, releasing the blood. In some instances cure of subungual abscess is obtained only by removal of a portion or of the whole of the nail.

Lupus Erythematosus Treated with Vasodilators and Colloid Gold Sulphide.

J. M. SCHMIDT (*Archives of Dermatology and Syphilology*, August, 1947) reports the results of treating *lupus erythematosis* with vasodilators and colloid gold sulphide. The preparation used contained 86% metallic gold and 14% sulphur in true colloidal form. To increase the flow of blood to the skin by overcoming vasospasm, nicotinic acid was administered. A number of precautions are listed which should be observed during this form of treatment. Clinical improvement was rapid. The response to treatment appears to be correlated with the degree of peripheral flush induced by nicotinic acid. The studies in thirty cases further demonstrated that the presence of severe leucopenia, hypertension or albuminuria in persons with *lupus erythematosus* is no contraindication to treatment with colloidal gold sulphide and vasodilators. No toxic reactions were observed.

Cutaneous Diphtheria.

J. M. CHURCH AND P. MASON (*Archives of Dermatology and Syphilology*, September, 1947) report ten cases of cutaneous diphtheria amongst American troops in Germany. Diagnostic difficulties resulted from the great variety of lesions and their location. While the disease is rather unusual amongst civilians, it occurs with some frequency amongst the armed forces. The cases are reported in detail. The lesions occurred in such situations as the toe webs, the palms of the hands, the dorsum of the foot, the inguinal region and the penis, and in one case an extensive eruption occurred on the wrists, palms of the hands and lower parts of the legs. The lesions presented a diversified appearance. Diphtheria antitoxin was administered intramuscularly to all patients. In addition, some of the patients received non-specific chemotherapy (penicillin, sulphadiazine and thiamin hydrochloride). Local non-specific therapy was also employed. All patients required lengthy treatment in hospital. Electrocardiographic evidence of myocardial damage and peripheral neuritis were encountered. Cultures of *Corynebacterium diphtheriæ* were grown from throat swabs in three cases.

Acidity of the Scalp.

O. BERGEIM AND T. CORNBLETT (*Archives of Dermatology and Syphilology*, October, 1947) discuss acidity of the scalp, its nature and possible relation to seborrhœa. The human scalp was observed to have a distinctly acid reaction. The acidity which varied between pH 4·5 and 5·5 was due to lactic acid secreted in the sweat and to a lesser degree to volatile fatty acids which are believed to be formed from the lactic acid by microorganisms on the scalp. The degrees of acidity observed were adequate to account for a definite antibacterial action for many types of microorganisms and are believed to be of importance in the prevention of infection of the scalp. The accumulation of acids is believed to be not uncommonly associated with itching of the scalp which is relieved by washing; washing temporarily reduces the acidity. No uniform relationship was observed between acidity and seborrhœa.

Vitamin A in Darier's Disease.

A. D. PORTER, E. W. GODDING AND S. R. BRUNAUER (*Archives of Dermatology and Syphilology*, September, 1947) describe their studies on the effect of vitamin *A* in seven cases of Darier's disease and compare their results with those of others. "Great" improvement occurred in one case, "much" improvement in another, "slight" improvement in three and none at all in two. Big doses of vitamin *A*, in the neighbourhood of 100,000 units daily, gave the best results, and it is suggested that they should be continued until improvement ceases. In spite of the effectiveness of this treatment, all investigations indicate that Darier's disease is not a simple vitamin *A* deficiency state. It is suggested that there is an upset of the ability of the basal cells of the epidermis to use vitamin *A* or its derivatives in a normal manner or to synthesize compounds containing vitamin *A* as required.

Lipstick Cheilitis.

S. J. ZAKON, A. Z. GOLDBERG AND J. H. KAHN (*Archives of Dermatology and Syphilology*, October, 1947) state that cheilitis is one of the most commonly seen dermatoses in clinical practice. Among the most frequent causes of this disease in women is the dye used to impart lasting qualities to indelible lipsticks: dibromfluorescein, tribromfluorescein or tetrabromfluorescein. Other causative agents of cheilitis reported include actinic rays of sunlight, cold, urticaria, carmine and aniline dyes in liquid rouge, dental plates, eosin dye, denture creams containing oil of anise, mouth washes, cigarette holders, derivatives of bromfluorescein toothpaste, nail polish and many others. Lipstick dermatitis is characterized by swelling and œdema of both lips. There may be also scaling, fissuring and superficial erosions with occasional grouped vesicles. Subjective symptoms are usually sensations of dryness, burning and tingling. Among physical factors to be considered in a diagnosis of cheilitis are trauma, salivation, light, biting or licking the lips. Local conditions to be eliminated are *herpes simplex*, eruptions due to drugs, bullous *erythema multiforme*, syphilitic chancres and papules, leucoplakia, avitaminosis, eczema, *cheilitis exfoliativa* and *cheilitis glandularis*. Amongst generalized conditions with lip involvement to be ruled out are *lupus erythematosus, erythema multiforme*, drug eruptions, pemphigus and *lichen planus*. Sensitization to light in the authors' cases seemed to be negligible. The use of lipstick with a non-indelible dye is a practical, safe and rapid treatment of this problem.

Plantar Warts.

H. BLANK (*Archives of Dermatology and Syphilology*, October, 1947) claims much success from the destruction of plantar warts with phenol and nitric acid. Either of these drugs when used alone may cause destructive changes which are unpredictable and result in injury to the patient. If they are used in combination, by first applying phenol and following it immediately with nitric acid, the penetrating necrosing action is controlled by the reaction which converts the two chemicals into trinitrophenol (picric acid). The chemicals must be applied carefully in small amounts so that only the lesion itself is touched and the surrounding skin is undamaged. The following steps are taken. (i) The lesion is pared down as much as possible with a scalpel. (ii) With a fine wooden applicator a drop of 9% phenol is carefully applied to the top of the wart. (iii) With another applicator a drop of fuming concentrated nitric acid is applied directly over the phenol. (iv) A rounded pad of felt or several layers of adhesive plaster with a hole the size of the wart is applied. (v) A small amount of 60% salicylic acid in petrolatum is placed in the ring not quite completely filling the hole in the plaster or pad. The entire pad is fixed to the foot with plaster. The patient continues his usual activities. In four or five days the dressing is removed and the verruca and surrounding cal-

lous are pared down with a scalpel. The same procedure as above is repeated until the wart is cured.

UROLOGY.

Pathology of the Female Urethra.

R. B. CARSON (*The Urologic and Cutaneous Review*, January, 1947) believes that the urethra is responsible in about three-quarters of all cases in which female patients complain of vesical disturbances. The most common lesions found are urethritis, stricture, polypi and caruncles. Much less common are calculi, diverticula, carcinomata and urethro-vaginal fistulæ. The patient usually seeks relief from dysuria, frequency, local or referred pain or nocturia, in that order of occurrence. Less often she complains of hæmaturia, incontinence, dyspareunia, strangury or difficult starting of the stream. Too often the examiner disregards the urethra and passes rapidly to search in the bladder or upper portion of the urinary tract for the *fons et origo mali*, but very often the real origin is in the distal tube. Fortunately for the patient the routine sound dilatation and the passage of the panendoscope (24 F.) act as a very useful treatment with subsequent improvement and relief of symptoms. The small calibre sheath of the panendoscope is a most useful instrument for viewing this canal. Various degrees of acute or chronic inflammation may be diagnosed and this observation is easier if the small panendoscope is passed from without inwards, and an examination is made in the process. Urethral stricture is a common finding in the female and is determined by the passing of a woven *bougie à boule*. The diameter of the normal female urethra varies however from the size of 22 F. to that of 34 F. and the normal for each individual should be determined by the use of varying sized *bougies à boule* before any dilatation treatment is carried out. Urethral caruncles are as a rule preceded by urethritis and they are of three varieties, namely, granuloma, papillary angioma and telangiectatic mucoid polypi.

Stress Incontinence.

E. HOCK (*The Journal of Urology*, June, 1947) says that the causes and mechanism of stress incontinence in women are still poorly understood. Normally, that is, at ordinary times, continence is not achieved by active contraction of the external sphincter, but is partly due to the continuing normal tone or tonic state of the external sphincter; this state is one of the factors of normal urethral resistance to the escape of urine. For the achievement of continence it is immaterial, however, whether the internal or the external sphincter functions well. The only important criterion is whether the sum total of all factors contributing to urethral resistance is great enough to withstand a sudden increase in intravesical pressure. Apart from neurological disorders, not considered here, the resistance of the urethra can be diminished by injury to the supporting structures of the urethra, by injury to the internal or external sphincter and by relaxation of the urethra from other causes. The mechanical causes of the first two account for only a small proportion of cases met in clinical practice. Other causes are very important because (*a*) many women with pronounced urethrocele or cystocele are perfectly continent; (*b*) stress incontinence is found in young women who have not had children; (*c*) some cases develop after the menopause many years after the birth of the last child; and (*d*) variability of symptoms in the same patient and improvement after urethral dilatation point to some inflammatory cause. A study of reflexes in this region shows that any disease of the urethra which causes continuous irritation may produce reflex relaxation of the sphincters. The same reflex may cause increased tonus of the vesical detrusor. The latter may bring on the frequent symptom of urinary frequency. If urethral relaxation is due to injury to the sphincters or supporting structures, then one of the accepted repair operations is indicated. Otherwise the urethra should be inspected for signs of chronic infection. These signs, however, may be absent, for the infection may be deep in the urethral glands, but dilatation and light electrocoagulation of the circumference of the bladder neck, and any other inflamed areas in the urethra should be carried out. All polypoid formations should be destroyed. Occasionally the treatment has to be repeated. Œstrogens are of value in post-menopausal incontinence, and antispasmodics such as belladonna or "Trasentin" are useful adjuvants. It is important that both the dilatation and the fulguration should be light.

Azoospermia.

L. MICHELSON (*The Journal of Urology*, March, 1947) reports 146 cases of azoospermia. He states that the most frequent causes of degeneration of the spermatogenetic cell was cryptorchidism and the most frequent inflammatory cause was mumps orchitis. The most frequent disease causing obstruction of the vaso-epididymal duct was gonorrhœa. Absence of the *vasa deferentia* was noted in four cases in this series. Testicular biopsy is essential in diagnosis and in determining the treatment of azoospermia. Results of treatment are poor. In the hands of the author the only measures bringing success have been surgical ones. Hormone therapy has been a complete failure.

Studies in Urolithiasis.

E. L. PRIEN AND C. FRONDEL (*The Journal of Urology*, June, 1947) declare that the analysis of urinary calculi by chemical methods is unsatisfactory. Many supposed constituents are found to be non-existent when sought by modern physical methods. Practically all urinary calculi are crystalline and should be amenable to analysis by optical crystallography and X-ray crystallography. In routine analysis the calculi are first fractured and dissected with a pointed tool under low magnification with ordinary light. Samples are selected from the nucleus, various layers *et cetera*, and are then powdered and identified under the polarizing microscope. Polarized light is influenced by transmission through transparent grains of coarsely powdered calculus, and these changes in light are measured by the microscope and may be recorded as the optical constants of the substance. The optical constants depend on the atomic structure and are distinct, invariable and characteristic for each crystalline substance. Examination by X-ray diffraction photography consists in irradiating finely powdered calculus material by a beam of monochromatic X rays, and recording the rays reflected from the crystal planes upon a film as a series of lines of variable spacing and intensity producing what is known as a "powder pattern". Such patterns are characteristic for each substance. However, this X-ray diffraction study is not practical in the routine analysis of calculi, since it is expensive and time-consuming.

Streptomycin in Urinary Tract Infection.

D. K. WORGAN AND J. C. KIMBROUGH (*The Urologic and Cutaneous Review*, June, 1947) discuss a series of thirty cases of urinary tract infection treated with streptomycin. Because of many undesirable side effects reported from the use of streptomycin only those patients were selected who would not respond to other agents. All the cases were of chronic pyelonephritis, many of several years' duration. It was noted that the presence of stones, catheters, tubes and obstructions of any type greatly impeded the action of streptomycin. Adequate drainage and good urinary output are essential for the best results. If the urine is not sterile after six days of treatment with 2·4 grammes per day, further use of the antibiotic is useless. Of the four common Gram-negative invaders of the urinary tract, *Proteus vulgaris* and *Aerobacter aerogenes* respond better than *Pseudomonas aeruginosa* and *Escherichia coli*. Mild reactions are very common. Permanent impairment of the eighth cranial nerve is severe enough and frequent enough to call for caution in the use of this antibiotic. Moreover, one definite case of renal irritation with hæmaturia is reported in this series.

C. P. MATHE (*The Urologic and Cutaneous Review*, June, 1947) publishes a review of the use of streptomycin in 36 cases of urinary tract infection, six of which were due to the bacillus of tuberculosis. The pyogenic infections were caused by *Escherichia coli*, non-hæmolytic streptococcus and hæmolytic staphylococcus, all not susceptible to sulphonamides or penicillin. In some of the tuberculous cases a persistent infection of the bladder remained after nephrectomy for unilateral renal tuberculosis. In others the agent was used for bilateral renal tuberculosis when the urinary symptoms were prominent and debilitating. In two patients of the whole series streptomycin had to be discontinued on account of nausea, dizziness and renal pain. In one patient with a mixed coccal and bacillary infection the urine was cleared of infection, but the patient was left with deafness due to paralysis of the eighth nerve. The author successfully used the agent in three candidates for prostatectomy in whom there was overwhelming infection of the urinary tract as well as azotæmia. A short course of treatment controlled the infection and prostatectomy was successful. Streptomycin offers some hope of amelioration of suffering in the presence of unilateral renal tuberculosis, but its curative value is highly problematical. Hope held out by this new agent should not lead one to delay early nephrectomy in unilateral renal tuberculosis.

British Medical Association News.

ANNUAL MEETING.

THE annual meeting of the Queensland Branch of the British Medical Association was held at B.M.A. House, Wickham Terrace, Brisbane, on December 12, 1947, DR. HORACE JOHNSON, the President, in the chair.

ANNUAL REPORT OF THE COUNCIL.

The annual report of the Council, which had previously been circulated among members, was taken as read and adopted on the motion of Dr. Arnold Robertson, seconded by Dr. Norman Sherwood. The report is as follows.

The Council has pleasure in presenting the following report of the work of the Branch for the year ending November 15, 1947.

Membership.

The membership of the Branch is 715 *plus* 5 honorary members and 1 complimentary member, as against 685 and 2 complimentary members in 1946, making a total gain of 36. There are also 108 honorary associate members, 53 of whom were elected this year.

The gains were: new members, 35; transfers from other Branches, 44; members reinstated, 2.

The losses were: members transferred to other Branches, 30; resignations, 4; deceased, 10.

Obituary.

The Branch has sustained a loss by the death of the following members: Dr. Ewing J. Thomson, Brisbane; Dr. J. Mowbray Thomson, Brisbane; Dr. Dallas B. Walker, Rockhampton; Dr. S. V. O'Regan, Mundubbera; Dr. W. J. F. Douglas, Brisbane; Dr. W. R. Dive, Brisbane; Dr. Lilian V. Cooper, Brisbane; Dr. L. H. Foote, Brisbane; Dr. S. F. McDonald, Brisbane; Dr. G. P. Dixon, Brisbane.

Meetings.

In addition to the annual meeting, ten general meetings of the Branch were held, including two clinical meetings; also a special general meeting was called for the purpose of amending By-Law 68, "Hospital Boards", and a further special general meeting to give members the opportunity of hearing Dr. J. G. Hunter, Federal Council Secretary, and Dr. H. R. R. Grieve, President, New South Wales Branch, speak on "The Proposed National Medical Service". The average attendance at the meetings was 80.

Twenty-two council meetings were held. The record of attendances of the Council is as follows:

Council.

Dr. Horace W. Johnson (President)	21
Dr. Norman Sherwood (President-Elect)	21
Dr. J. G. Wagner (Past President)	16
Dr. H. W. Horn (Honorary Treasurer, Federal Council Representative, Chairman of Committees)	20
Dr. Harold Love (Honorary Secretary, Honorary Secretary of Committees)	19
Dr. Felix Arden (Honorary Secretary)—resigned March 28, 1947)	7
Dr. R. V. Adamson (Councillor)	14
Dr. H. W. Anderson (Councillor)	18
Dr. T. V. Stubbs Brown (Councillor)	20
Dr. Milton Geaney (Councillor)	17
Dr. Glen V. Hickey (Councillor)	16
Dr. Alan E. Lee (Councillor and Federal Council Representative)	18
Dr. F. W. R. Lukin (Councillor)	12
Dr. R. G. Quinn (Councillor)	20
Dr. W. H. Steel (Councillor)	18
Dr. L. P. Winterbotham (Councillor)	14
Dr. Arnold Robertson (Councillor)—elected December 20, 1946	18
Dr. E. Lorimer Walker (Councillor)—elected April 11, 1947	12
Dr. J. G. Morris (Councillor)—elected June 27, 1947	8
Dr. E. W. Casey (Councillor)—resigned June 27, 1947	7

Scientific and Medico-Political.

January.—Special general meeting: To amend By-Law 68, "Hospital Boards".

February.—Dr. John Hunter: "Medical Services in Great Britain: Points of View of the Medical Profession and the Government."

March.—Clinical meeting in conjunction with the Brisbane Hospital Clinical Society.

April.—Professor A. J. Canny: "Progress and Problems in Pathology."

May.—Dr. G. V. Murphy: "The Management of the Patient with Anxiety Reactions."

June.—Dr. F. W. Clements: "Clinical Manifestations of Deficiency States in Infants and Children." (The Bancroft Oration.)

July.—Clinical meeting in conjunction with the Mater Misericordiæ Clinical Society.

August.—Professor G. Shedden Adam: "Sterility: Its Investigation and Treatment."

September.—Dr. Ian Mackerras: "Australia's Contribution to our Knowledge of Insect-Borne Diseases." (Jackson Lecture.)

October.—Dr. A. Fryberg: "Poliomyelitis." Special general meeting—Dr. J. G. Hunter and Dr. H. R. R. Grieve: "The Proposed National Medical Service."

November.—Symposium of treatment of heart disease: (*a*) Dr. Horace Johnson, "Treatment of Coronary Disease"; (*b*) Dr. Alex. P. Murphy, "Treatment of Congestive Failure"; (*c*) Dr. Harold Love, "Treatment of Hypertension"; (*d*) Dr. Alec Paterson, "Treatment of Rheumatic Carditis in Childhood".

Office Bearers and Councillors.

Dr. Norman Sherwood was elected president-elect for the ensuing year.

Honorary Secretary.—In April Dr. Felix Arden, who held the position of honorary secretary, tendered his resignation owing to personal reasons, and Dr. Harold R. Love was appointed to this office. The Council wishes to record its appreciation of the services of both these members.

Council.—A number of changes have taken place in the personnel of the Council during the year. At the beginning of the year, when Dr. Arden was appointed honorary secretary, a vacancy was created on the Council, to which Dr. Arnold W. Robertson was appointed, and later, when the former resigned, Dr. Lorimer Walker was elected. In June, Dr. E. W. Casey, owing to his departure to Melbourne, resigned, and Dr. J. G. Morris was elected.

The following office bearers were elected by the Council:
Honorary Treasurer: Dr. H. W. Horn.
Chairman of Committees: Dr. H. W. Horn.
Honorary Secretary of Committees: Dr. Harold R. Love.
Honorary Librarian: Dr. Neville G. Sutton.
Assistant Honorary Librarian: Dr. Konrad Hirschfeld.

Vice-Presidents.

In accordance with Article Number 55, at the last annual meeting of the Branch it was unanimously resolved, on the nomination of the Council, that Dr. D. Gifford Croll be elected a vice-president in recognition of the valuable services given by him during the past twenty-seven years, both to the Branch and to the Federal Council.

A similar honour was conferred upon Dr. Thomas A. Price, of Toowoomba, in 1939.

Ethics Committee.

At the annual meeting of the Branch held on December 13, 1946, the following were elected members of the Ethics Committee: Dr. J. G. Avery, Dr. D. Gifford Croll, Dr. L. J. J. Nye, Dr. J. J. Power, Dr. M. Graham Sutton, Dr. G. P. Dixon, Dr. S. F. McDonald. The *ex-officio* members of the Ethics Committee consist of the president, president-elect, the honorary treasurer and the honorary secretary for the time being in office. No meetings were held during the year.

Library.

As the result of a recommendation submitted to the Council from the last annual meeting, that the allocation of funds for library purposes should be materially increased, new medical journals have been added to the subscription list. In addition most of the library has been moved downstairs and a number of new bookcases installed.

A list of journals including the new ones will be made available to members when regular issues come to hand at the beginning of the year. A subcommittee consisting of Professor Neville Sutton, Honorary Librarian, Dr. K. Hirschfeld, Assistant Honorary Librarian, and Dr. Alan Lee advised the Council on the most suitable periodicals and journals to be added to the library.

During the year 138 books were borrowed by 43 members.

Representation.

The Branch was represented as follows during the year.

Council of the British Medical Association: Dr. Isaac Jones.
Federal Council of the British Medical Association in Australia: Dr. H. W. Horn and Dr. Alan E. Lee.
British Medical Association Representative Meeting in London: Dr. F. J. Booth.
Federal Council Contract Practice Committee: Dr. L. P. Winterbotham.
Australasian Medical Publishing Company, Limited: Dr. D. Gifford Croll (director), Dr. T. A. Price, Dr. A. E. Lee (members).
Medical Assessment Tribunal: Dr. A. H. Marks.
Queensland Medical Board: Dr. D. Gifford Croll, Dr. J. G. Wagner, Dr. R. G. Quinn.
Medical Officers' Relief Fund (Federal): Queensland Committee—Dr. D. Gifford Croll, Dr. W. H. Steel.
Post-Graduate Medical Education Committee: Dr. Alan E. Lee, Dr. Felix Arden, Dr. Harold R. Love.
Queensland Institute of Medical Research: Dr. W. H. Steel.
Queensland Bush Nursing Association: Dr. L. Bedford Elwell.
Queensland Council of Social Agencies, Social Studies: Dr. G. B. V. Murphy.
Flying Doctor Service in Australia: Dr. Harold Crawford.
Red Cross Blood Transfusion Service Committee: Dr. Milton Geaney.
The Surf Life Saving Association of Australia, Queensland State Centre: Dr. F. W. R. Lukin (liaison officer).
Physical Fitness Association of Queensland: Dr. E. S. Meyers, Dr. Harold Crawford.
Australian Association for Better Hearing: Dr. Herbert Earnshaw, Dr. L. T. Jobbins.
Queensland Bush Children's Health Scheme: Dr. Felix Arden.
Board of Studies in Physiotherapy: Dr. J. R. S. Lahz.

The Editor of THE MEDICAL JOURNAL OF AUSTRALIA was represented by Dr. Felix Arden.

Organization Subcommittee.

Personnel.—Dr. H. W. Horn (chairman), Dr. Alan E. Lee, Dr. R. G. Quinn, Dr. Arnold Robertson, Dr. Stubbs Brown, Dr. H. W. Anderson, Dr. Harold R. Love (honorary secretary), and the *ex officio* members of the Council.

This subcommittee deals with most of the matters submitted to the Branch. It is vested with power to take action in those matters which do not involve policy or are not of a controversial nature, and to make recommendations to the Council. Twenty-three meetings of the committee took place.

By-Laws.

During the year the only addition made to the by-laws was to provide for the control of hospital appointments (Number 68 (*a*) (*b*) (*c*)).

The new by-law was adopted at a special general meeting of the Branch held on January 24, 1947.

Subscription of Junior Members.

Proposed Amendment of By-Law 4.—The proposed amendment will be submitted to the annual meeting of the Branch to be held on December 12, 1947, as follows:

> That the subscription of junior members (under three (3) years' qualification) be raised from £2 12s. 6d. to £3 3s.

It has been decided by the Council that all members of the Branch entitled to junior rate of subscription on enlistment pay at that rate for three years excluding years in the services.

Poisons Regulations.

Poisons regulations have been amended during the year. Members are advised to make themselves conversant with them, particularly in regard to the requirements in relation to the prescribing of dangerous and restricted drugs.

Accident and Sickness Insurance Policies: List of Specified Diseases.

At the request of the Council the list of specified diseases included in insurance policies has been under consideration. Many of the diseases mentioned in the list of "The Accident and Sickness Policy" are very rare and a number of the infectious diseases are diseases of childhood.

Rationing.

The Liquid Fuel Subcommittee, which looks after the requirements of petrol for doctors, still continues to function. The personnel of the committee is: Dr. L. P. Winterbotham (chairman), Dr. A. G. Anderson, Dr. J. G. Avery, Dr. Alec Paterson (with the assistance of Mr. F. K. Davis).

The same committee, with the exception of Dr. A. G. Anderson, deals with the matter of supplies of surgery linen for medical practitioners.

Medical Certificates.—Many trading firms are still endeavouring to demand medical certificates, without the backing of regulations, as a means of rationing certain goods in short supply—enamel baths, telephones and rice being amongst the most contentious. Members have been advised not to issue such certificates.

Building Subcommittee.

Personnel.—Dr. D. Gifford Croll, Dr. R. G. Quinn, Dr. Graham Sutton.

British Medical Association House.—In view of the fact that it was found impossible to proceed with the erection of new premises on the Wickham Terrace site, and as prospects of commencing this work within a reasonable time were anything but bright, it was necessary to undertake structual repairs and renovations to British Medical Association House.

As very little has been spent on the building for a number of years owing to the proposal to erect new premises, the expenditure involved was considerable.

Bartley Street Property.—To make provision for extension in the future, property including a large wooden house situated at the rear of British Medical Association House has been purchased by the Council under favourable terms, and should prove a great asset when the new premises are being erected.

Special Groups for the Study of Special Medical Subjects.

Although a number of these groups were functioning prior to the war, some of them have never been resuscitated, and it is hoped that in the coming year they will become active.

A newly inaugurated group is the Orthopædic Section, of which Dr. A. V. Meehan is the chairman, Dr. G. A. C. Douglas, vice-chairman, Dr. Harold Crawford, honorary treasurer, and Dr. J. R. S. Lahz, honorary secretary. Members of the British Medical Association are eligible for membership of the section if they are wholly engaged in the practice of orthopædic surgery, or engaged in preparation to become orthopædic surgeons, or hold positions in orthopædic departments of general hospitals.

The Queensland Sections of Ophthalmology, Radiology and Anæsthetics are in operation.

Hospital.

Salaries Payable to Full-Time Hospital Medical Officers.—A schedule of salaries drawn up by the Public Service Commissioner for medical superintendents of base hospitals and for senior and junior medical officers was issued during the year. The rates, which have been approved by Cabinet, apply to full-time medical officers only and are not applicable to part-time medical officers who have the right of private practice. The attention of the Department of Health and Home Affairs was drawn to the inadequate salary in grade 3 hospitals where there is lack of private practice and amenities, and, through isolation, added responsibility, otherwise the rates appear to be satisfactory.

Brisbane and South Coast Hospitals Board: Salaries of Part-Time Staff.—In May last the new terms and conditions for further appointments of the part-time visiting medical staff, on the basis of annual salaries, were announced and approved by the Council. Provision has been made for four weeks' annual recreation leave on full pay, and the remuneration and other conditions are satisfactory.

General.—Many hospital matters of a general nature were also dealt with by the Council during the year. These included anæsthetic fees, mileage rate, where distances have to be travelled by hospital medical officers to adjacent centres in the exercise of their duty, out-patient clinics and annual recreation leave. All the assistance and advice possible were rendered to the various members concerned.

Lodge Contract Practice.

Proposed Federal Common Form of Agreement.—After years of negotiation the friendly societies of Australia have decided that they are unable to approve of the proposed Federal Common Form of Agreement on a federal basis with the British Medical Association, owing to the different conditions existing in the States, and it was suggested that future agreements be left to the States to suit local con-

ditions. It was pointed out to the friendly societies that an earlier decision in this matter would have saved much time and money.

In Queensland the present Form of Agreement continues in operation. The capitation rate fixed by the Government Statistician in accordance with the agreement existing in the metropolitan area was increased to 34s. 6d. per adult male member *per annum*, as from July 1, 1947. Many country centres have had their lodge rate raised to 34s., which was the figure ruling in the metropolitan area prior to July 1, 1947. The Council has expressed the opinion that the metropolitan capitation fee should be the minimum rate for all country centres.

Periodical meetings of the Joint Committee have taken place, and various matters dealt with in the interests of both doctors and lodges. Representatives of the Association on the Joint Committee are as follows: Dr. L. P. Winterbotham, Dr. H. W. Horn, Dr. F. W. R. Lukin, Dr. H. W. Anderson, Dr. E. Lorimer Walker.

Workers' Compensation Insurance.

Medical Fees.

The schedule of medical fees which has been in operation in Queensland since April, 1945, is at present under revision. On the whole it has worked satisfactorily, but it is hoped that in the amended schedule some of the anomalies which were not apparent when the original scale of fees was drawn up will be corrected.

Both members and the Insurance Commissioner have taken advantage of the provision in Clause 5 of the present schedule, and have submitted fees in dispute to the Medical Fees Tribunal of the Branch for adjudication. Five such cases have been referred to the tribunal during the year and in three of them the finding given was that the fee charged was fair and just and in the remaining two that the fees charged were higher than was warranted. In other cases the Council has dealt with such matters with the assistance of Dr. H. W. Horn, who acts as liaison officer between the Council and the Commissioner.

With regard to private patients being treated in a public bed in a public hospital by arrangement with the medical superintendent or hospital board, the Commissioner has consistently refused to accept financial responsibility for their medical treatment.

The Council disagreed with his interpretation of the act in this respect, and as a result he has referred the matter to the Solicitor-General for interpretation. We are awaiting his decision.

Repatriation Commission.

Medical Benefits for Dependants of Deceased Soldiers, 1939-1945 War.—Information has been received through the Federal Council that the scheme providing medical benefits for widows, widowed mothers and orphans of the 1939-1945 war will be launched in Queensland as from January 1, 1948.

It has been requested that all action possible be taken to increase the number of medical practitioners who are available for this service in Queensland, and application should be made direct to the Brisbane office of the Repatriation Department.

Medical Fees Tribunal.

Personnel.—Dr. J. G. Wagner (acting chairman), Dr. D. Gifford Croll, Dr. H. S. McLelland, Dr. G. W. Macartney, Dr. R. G. Quinn, Dr. Alan E. Lee (honorary secretary). At the first meeting of the year held in May the late Dr. G. P. Dixon was elected chairman.

The tribunal met on five occasions and dealt with seven cases, five of which were referred by the State Government Insurance Commissioner in accordance with Clause 5 of the Schedule of Medical Fees for Workers' Compensation Insurance. The finding given in four of the cases was that the fee charged was fair and just, and in the remaining three cases that the fee charged was higher than was warranted *et cetera*.

Affiliated Local Associations.

There are now twelve local medical associations affiliated with the British Medical Association, all of which are functioning actively. The latest one to be formed is the Lower Burdekin District Local Association, Ayr, which has just been inaugurated.

A very successful conference of local associations and the Council was held on June 4, 1947, at which seven local associations were represented. The subjects discussed included medical services in public hospitals, lodge contract practice, workers' compensation—schedule of medical fees, and publicity.

Reports received from a number of the local associations are published hereunder.

South Burnett Local Medical Association.

Office bearers elected at the annual meeting were: President, Dr. S. V. Rickard; Vice-President, Dr. W. Monz; Secretary and Treasurer, Dr. N. Reid.

Lectures.—During the year we have held five meetings at Kingaroy, commencing with a dinner and ending with a discussion, or as on two occasions, a programme of medical films.

Attendance.—There are nine doctors in the association and our average attendance has been seven.

Lodge.—At our meeting on July 13 it was decided to bring the lodge fees for the district into line with the metropolitan fees as each town was working under a different rate. With the permission of the Price-Fixing Commissioner the rate for the district was set at 34s. *per capita per annum*.

Post-Graduate.—We hope this year to have more clinical meetings, and have contacted the Post-Graduate Medical Education Committee who are sending Dr. D. C. Jackson to give us a lecture on September 20.

N. REID,
Secretary.

Bundaberg Local Association.

Meetings.—During the year regular meetings of members were held and our main concern has been the possible proposed incidence of nationalization of the medical profession. We were therefore interested to receive a visit from Dr. A. J. Metcalfe and Dr. P. W. Mitchell a few months ago, and with these gentlemen we had a general discussion and they put forward the points in what appeared to be then a general plan which was later discussed officially with the Federal Council.

This year our representative, Dr. I. C. Hains, attended the meeting in June between representatives of local associations and the Queensland Branch Council. It is felt by this local association that discussion at these meetings is well worth while.

Office Bearers.—Dr. E. Schmidt, President; Dr. I. C. Hains, Honorary Secretary.

Members of Local Association.—Dr. A. W. Graham, Bundaberg; Dr. Duncan Fowles, Bundaberg; Dr. L. McKeon, Bundaberg; Dr. Eric Schmidt, Bundaberg; Dr. B. Skerman, Gin Gin.

Lectures.—During the year Dr. Cooper and Professor Webster lectured us on various aspects of radiation and the splitting of the atom. This lecture was much appreciated.

I. C. HAINS, Honorary Secretary.
E. SCHMIDT, President.

Mackay Local Medical Association.

Quarterly meetings of the local association which has been meeting only irregularly during the war years were resumed on March 27, 1947.

Election of Officers.—President, Dr. C. E. Williams; Secretary-Treasurer, Dr. S. C. Williams. There are fourteen members of the Association.

Rules of Procedure.—Rules of procedure for the Mackay Local Association were formulated and approved at a meeting on June 3, 1947.

The annual general meeting was held on September 2, 1947.

Clinical Meetings and Lectures.—Three clinical meetings were held during the year when Dr. Quayle, Dr. Walker, Dr. Power, Dr. Charlton and Dr. Arden gave us lectures and demonstrations and discussed cases with us. Papers were read during the year by Dr. C. E. Williams ("Looking Back over 45 Years of Practice in Mackay") and Dr. M. J. Gallagher ("Episiotomy, Albuminuria of Pregnancy and Alimentary Rest after Operation").

Rockhampton Local Medical Association.

The following office bearers were elected for the ensuing year: President, Dr. F. C. Wooster; Vice-President, Dr. R. P. Rundle; Secretary, Dr. W. D. Exton.

The membership of the Association numbers 27.

Post-Graduate.—Some very fine addresses have been delivered by visiting lecturers. The attendances have been good, and it is hoped that the Post-Graduate Committee will continue to send lecturers on tour.

Townsville Local Medical Association.

The past year has seen a continuation of activity and progress in both professional and business activities by this Association. Meetings have been held regularly on alternate Thursdays throughout the year, chiefly devoted to the presentation of clinical cases and papers on various medical subjects; a summary of these activities is presented below.

Finance.—Subscriptions to the local association for the current year were fixed at two guineas (£2 2s.) for private practitioner members and one guinea (£1 1s.) for resident medical officers, other than the hospital superintendent.

Business.—February 20, 1947: annual general meeting. The President's report was read and accepted. Election of office bearers: Dr. W. B. Chapman, reelected President; Dr. P. J. Monahan, elected Honorary Secretary-Treasurer.

General Business.—It was decided that this sub-branch agree to attend wards and widows of the local Legacy Group gratuitously.

April 17, 1947. Sub-branch annual meeting. Dr. Halberstater was elected to represent this sub-branch at the above meeting on June 4, 1947, in Brisbane, and to ascertain the current situation in regard to lodge matters.

Payment of medical officers for hospital work. It was resolved that this sub-branch is in favour of grading of specialists into senior and junior, with rates respectively of seven guineas and five guineas per session; also that payment for a full-time specialist be a minimum of £1500 *per annum plus* residence and keep.

May 30, 1947. At a business meeting in connexion with the agenda of the meeting of the sub-branch delegates it was resolved:

> Where private and intermediate patients are admitted to public wards, private fees should be charged by doctors attending.
>
> If salaried hospital staff are engaged in a consultative or emergency capacity to private or intermediate patients, such staff should be paid by the private doctor in attendance.
>
> Workers' compensation cases attended to in public wards by honorary staff should be paid for in accordance with Workers' Compensation Schedule of Fees.
>
> All appointments to public hospitals to be subject to the new by-laws.

In reference to lodge matters, this sub-branch was also in favour of uniformity of lodge agreements, and on introducing the Federal Common Form of Agreement.

At this meeting arrangements were also made for the establishment of a local blood bank in conjunction with the local branch of the Red Cross. The organization of this work was undertaken by Dr. Moore, and it is pleasing to report that this service has since functioned with efficiency and success.

June 26, 1947. At a business meeting the following important motion was carried:

> That no member of this sub-branch make any contract with any government body in reference to any new medical schemes without first notifying the sub-branch.

This motion followed discussion on a visit to Townsville of the Director-General of Health, with whom an hour's discussion on medico-political questions was held by representatives of this sub-branch. It was made clear at this discussion that doctors in this district are not in favour of participation in any medical scheme under governmental control.

July 24, 1947. Acting on the suggestion of the State Branch, this sub-branch applied to the Deputy Prices Commissioner for an increase in the lodge capitation fee. Authority for an increase to 34s. at once, and the fee subsequently to be on the same basis as the metropolitan, was granted in a letter dated July 14, 1947.

Following receipt of this, the lodges medical officers met representatives of the lodges in a lengthy conference, at which it was finally decided that capitation fees would be raised to 34s. as a commencing rate as from October 1, 1947.

September 4, 1947. A number of important matters were discussed at this meeting: (*a*) *Pharmaceutical Benefits Act*—resolved that this sub-branch abides by the advice of the Federal Council on the present issue; (*b*) ambulance matters; (*c*) workers' compensation cases; (*d*) medico-political. Following discussion of the latest developments, it was resolved that a member of the State Branch be invited to visit us to lecture on medico-political questions.

Social.—On January 28, 1947, a farewell dinner was given to Dr. Frank Tod-Stevens at the Queens Hotel on the occasion of his departure from Townsville following his resignation from the Commonwealth Medical Service. A small gift was made by the sub-branch as a token of our appreciation of his unfailing assistance and good fellowship.

On August 20 and 21, 1947, this sub-branch was honoured by a visit from Dr. Felix Arden and Dr. Robin Charlton, from Brisbane, under the auspices of the Post-Graduate Medical Education Committee. Dr. Arden's address consisted of a series of lecturettes on a wide range of pædiatric subjects, while Dr. Charlton dealt in detail with the lower segment operation in Cæsarean section. Some very informative clinical cases were also demonstrated. A record attendance of medical men for Townsville was present at this function, and we were glad to see the surrounding districts also represented.

An informal supper party was held at the home of our President following the lecture on August 20, 1947, and an official dinner was given in honour of our guests at the Sea View Hotel by this sub-branch on August 21, 1947.

P. J. MONAHAN,
Honorary Secretary.

Downs and South-Western Local Medical Association.

The Downs and South-Western Medical Association, after a recess during the war years, has during the year resumed its former activities.

Meetings.—Since the well-attended and successful 1946 annual general meeting several lectures have been given by visitors. Dr. H. Love gave a week-end course in December, 1946, on anæmia and jaundice; Dr. T. Parry spoke on coronary occlusion in March, 1947; Dr. T. V. Stubbs Brown in April, 1947, told us of his recent trip abroad. In February, 1947, a successful clinical meeting was conducted by our own members. Eight executive meetings have been held during the year.

Lodge.—During the year an amicable agreement was reached with the Toowoomba Associated Friendly Societies Medical Institute concerning lodge practice in Toowoomba.

Acknowledgements.—Our thanks are due to the various visiting lecturers who have given us the benefit of their knowledge. We are grateful to the Toowoomba Hospitals Board and the Medical Superintendent for their courtesy in connexion with supper arrangements. We are indebted to Dr. Morton for the use of his rooms for executive meetings and to Dr. G. V. Hickey for assistance in matters requiring contact with the Branch Council in Brisbane.

Congratulations.—Congratulations are extended to Dr. G. V. Hickey on his election to the Branch Council of the British Medical Association.

Membership.—We are pleased to welcome Dr. A. W. L. Row, who after lengthy service with the Australian Imperial Force resumed practice in Toowoomba. He was appointed to the executive in place of Dr. Wherrett, who left the district. Dr. A. D. McKenzie and Dr. David Horn retired from active practice during the year, and best wishes were extended to them for a happy retirement. Several new members commencing practice in the area have helped to swell our membership, which now stands at 24 financial members of 54 members on our list.

Official Representation.—The President represented the Downs and South-Western Medical Association at (*a*) the conference of local associations of the British Medical Association held in Brisbane during Post-Graduate Week, (*b*) at the annual dinner of the Toowoomba Dental Association, and (*c*) at the function given by the Toowoomba Medical Institute to Dr. David Horn on his retirement, and (*d*) Dr. A. W. L. Row deputized for the President during the latter's illness at the presentation of the charter to the Toowoomba Legacy Contact Group.

The main business of the Association has been carried on by the executive, and as president, I thank them for their hearty cooperation; also the honorary secretary, Dr. G. V. Hickey, junior, who has been an enthusiastic and hard-working secretary.

A. S. FURNESS,
President.

At the twenty-first annual general meeting of the Downs and South-Western Medical Association held on September 20, 1947, at Toowoomba, 22 members were present and the following officers were elected for the ensuing year: President, Dr. J. G. M. Beale; President-Elect, Dr. M. Graham Wilson; Honorary Secretary, Dr. G. V. Hickey, junior; Honorary Treasurer, Dr. J. G. Hulme; Honorary

Auditors, Dr. V. R. Woodhill and Dr. C. R. Morton; Committee, Dr. G. V. Hickey, Dr. F. Trennery, Dr. V. R. Woodhill, Dr. W. F. Machin, Dr. E. A. F. McDonald and Dr. R. J. H. Spark.

G. V. HICKEY, JUNIOR,
Honorary Secretary.

Nambour District Local Medical Association.

At a meeting of private practitioners on August 3, 1946, it was decided to form this local association. It was suggested that there was ample reason for its formation in the area to be included within its bounds—the three shires of Maroochy, Noosa and Landsborough. Dr. K. H. Shaw, of Buderim, was elected President, and Dr. A. W. Eklund, of Nambour, Secretary-Treasurer. A committee of two was formed to draw up a constitution to be modelled on the lines of the old North Coast Medical Association.

Meetings and Lectures.—Meetings have been held on the first Saturday night of each month; with a few exceptions earlier meetings were confined to business discussions relating to lodge agreements, hospital bed accommodation and liaison between private practitioners and the public hospital. Negotiations between lodge secretaries, the Price Fixing Commissioner and this Association resulted in a raised capitation fee of 34s. *per annum* maximum for this area.

On October 5, 1946, it was the privilege of the Association to be visited by Dr. Norman Sherwood, the Honorary Secretary of the Branch. He answered many questions and clarified the position regarding arrangements for visiting speakers, hospital bed situation *et cetera*.

On October 15 a special meeting was convened by the President to arrange a deputation of local members to meet the Brisbane and South Coast Hospitals Board when it visited Nambour Hospital. Subject matter discussed included an inquiry into the part which might be played by private practitioners in the treatment of public patients at the hospital. The deputation did not meet with a very satisfactory result. The first clinical meeting was held on February 1, 1947, when subjects were discussed by two local practitioners. The Post-Graduate Committee has arranged visits to Nambour when addresses have been given by Dr. Brandis, Dr. Arden, Dr. Ellis Murphy, Dr. Quayle and Dr. McLelland.

Obstetrical films were shown on May 17, June 7 and July 5.

The Secretary attended the conference of local associations held in Brisbane on June 4 with the Council of the Branch.

During the year Dr. H. K. Shaw, President, was forced through indifferent health to be absent from a number of meetings, and did not stand for reelection at the annual meeting on September 6.

Election of Officers.—President, Dr. A. W. Eklund; Secretary-Treasurer, Dr. G. E. W. Streeten.

A private hospital is now functioning and the bed situation for private practitioners is considerably easier and is now a minor problem, if one at all.

Acknowledgements.—In closing this report I should like to express satisfaction first for the response on the part of the private practitioners for the support this Association has received in this, its first year, and secondly, for the support of the Superintendent of the Nambour Hospital in providing a meeting place and delightful suppers on many occasions. It is to be hoped that the Association is to continue in its next year what has been a very promising and successful start. The Association provides a meeting place for bush practitioners where minor differences can be settled and where clinical appetites can, if not satisfied, at least be whetted.

G. E. W. STREETEN,
Secretary.

Federal Council.

Meetings of the Federal Council were held in Melbourne from March 3 to 5, 1947, and from July 17 to 22, 1947, and were attended by Dr. Alan E. Lee and Dr. H. W. Horn as representatives of the Branch.

Reports of the meetings were published in THE MEDICAL JOURNAL OF AUSTRALIA as usual.

The Council has agreed to delegate to the Federal Council the power to state decisions to all interested bodies as the Association's policy in respect of questions on which Branch Councils have made decisions, and reported such decisions to the Federal Council, provided that when important facts concerning any such questions have been learned, subsequent to their consideration by Branch Councils, such facts shall be referred to Branch Councils for further consideration before the Federal Council can come to any decision binding on the Branches.

The constitution of the Federal Council has been amended to provide for an increase in the number of representatives as follows: New South Wales, 4; Victoria, 3; Queensland, South Australia, Western Australia and Tasmania, each 2. Provision has also been made for a quorum to comprise six members representing four Branches.

The General Secretary of the Federal Council, Dr. J. G. Hunter, paid a visit to the Branch in February after his trip abroad and gave an interesting address on his impressions of medical services in Great Britain from the points of view of the medical profession and of the Government. About one hundred members were present.

Federal Medical War Relief Fund—income tax. Advice was received that gifts to the Federal Medical War Relief Fund are subject to concessional rebates of tax. This fund is still open for contributions. To date the Branch has forwarded subscriptions to the value of £1301 donated by 139 members. One donation was received during the year.

Proposed National Medical Service.

The sequence of recent events has been as follows. A conference between the members of the Federal Council and the Federal Minister for Health and Social Services, Senator McKenna, which took place in Melbourne on July 21 last, and consisted of an exchange of views, but no decisions were reached. On August 20 members were informed by circular of the impressions which had emerged from the conference as to the attitude of both the Minister and the British Medical Association, and again on October 20 these were put briefly in a memorandum which accompanied a plebiscite sent out to members of the Branch in an endeavour to ascertain their views on certain aspects of the question. Up to date 397 *questionnaires* have been returned and the replies are in process of being analysed for future reference and guidance. It is felt that the principles involved in the attitude of the Association and of the Minister will bear reiteration in this report as they are the crux of the whole question. They are briefly as follows.

Principles enunciated by the British Medical Association are: (i) Opposition to a full-time salaried service. (ii) Freedom from control in professional matters. (iii) Freedom for the patient to choose his own doctor. (iv) Freedom of the doctor to practise where and in the way he thinks best. (v) Adequate medical representation on controlling bodies. (vi) Freedom from political interference. (vii) A fee-per-service form of payment. (viii) A stable guaranteed fund to finance the service.

Views expressed by the Minister: (i) Private practice would be eliminated. (ii) Control and direction would be exercised over doctors in the service. (iii) The Government would not appoint British Medical Association nominees to the central controlling body. (iv) A fee-per-service method of payment was not favoured.

It was also stated that compensation would be paid to practitioners who joined the service by a certain declared date.

Through the monthly newsletter and other unofficial means members had been brought up to date with the position from time to time.

In addition to the above an extraordinary general meeting of the Branch was held on October 15, when we were fortunate in having Dr. H. R. R. Grieve, President of the New South Wales Branch of the British Medical Association, and Dr. J. G. Hunter, General Secretary of the Federal Council, to address members. The meeting was well attended, there being 102 members and senior medical students present.

Members of the Council have visited some of the extra metropolitan areas and addressed meetings, and it is intended that further such visits should be made at a later date as opportunity offers.

Pharmaceutical Benefits Act, 1947.

The Federal Council has reaffirmed its objections to the *Pharmaceutical Benefits Act* of 1947, and an interesting sidelight on the matter is Counsel's opinion regarding the obligations of the medical profession under the provisions of the act in view of the alterations of the Commonwealth Constitution. This legal opinion was to the effect that the services of medical practitioners cannot be compelled. The power under the Constitution, as amended, is not a power to regulate medical services, but only to legislate to provide such services without power to compel any person to render them.

A circular informing members of the Branch of the position, as it now stands, was sent out under date August 20, 1947, in which appeared a statement by the Federal Council to the effect that it could not advise members of the medical profession in Australia to use the government prescription forms and formulary.

Australasian Medical Congress, Perth, August, 1948.

This will be the first session held since the war. The Honorary Secretary of the Branch is Honorary Local Secretary of Congress for Queensland, and he will be able to supply information to members of the Branch.

Monthly Newsletters.

The monthly newsletter is maintaining its popularity as an avenue for the dissemination of matters of interest to the profession, and judging by the many appreciative comments it is serving its purpose well.

The members of the Publicity Committee are to be congratulated upon the work they are doing in this regard.

Benevolent Fund.

During the year it was found necessary to ask for assistance on behalf of a member who was ill. The response was very gratifying, £456 having been donated by 126 members.

The necessity for establishing a general benevolent fund to assist other such cases has been again under review and members have been invited to comment on the method of making donations.

University of Queensland.

British Medical Association (Queensland Branch) Medical Students' Loan Fund.—The personnel of the committee of administration includes Dr. C. A. Thelander (chairman), Professor Alex. Murphy, Professor H. J. Wilkinson, Dr. Arnold Robertson, the Dean of the Faculty of Medicine, Dr. E. S. Meyers, a representative of the University of Queensland Medical Society (nominated annually by the society) and the ex-officio members of the Council.

The fund now stands at £573 16s. During the year £58 6s. was donated by members of the Branch and £22 10s. by medical students.

Post-Graduate Medical Education.—The Senate has now approved of the amendment of the statute which confirms the joint control by the university and the Queensland Branch of the British Medical Association. The representatives of the Branch are Dr. Alan E. Lee, Dr. Felix Arden and Dr. Harold R. Love, who was appointed to the vacancy caused by the death of Dr. S. F. McDonald. Dr. S. F. McDonald, who was the chairman of the committee, had given very many years of valuable service to post-graduate medical education in Queensland, and he will be greatly missed. Dr. A. V. Meehan has been appointed chairman of the committee.

Last year the State Government gave £1000 for post-graduate medical education in Queensland. This has assisted the work of the committee enormously, and it has been made possible to arrange visits by overseas and southern lecturers of distinction to the metropolis, and numerous lecturing tours to centres in the country. The committee maintains contact with similar bodies in other States and in the United Kingdom, and is thus able to offer advice on post-graduate matters to all doctors interested.

Proposed Diploma in Psychological Medicine (Psychiatry).—A committee has been appointed to draw up a syllabus for the proposed diploma in psychological medicine (psychiatry), to which Dr. G. B. Murphy has been nominated as the representative of the Queensland Branch of the British Medical Association.

Pathological Museum Specimens.—A number of specimens which were the property of the Branch have been handed over to the James Vincent Duhig Museum of Pathology.

Harold Plant Memorial Prize.—Advice has been received that it has been decided by the Faculty of Medicine that no Harold Plant Memorial Prize would be awarded for 1947.

Memorial Prize of the British Medical Association (Queensland Branch), 1947.—Advice has been received that on the recommendation of the Faculty of Medicine the Senate has approved of this prize being divided between Jeffrey George Watson and John Kyrie Farnworth.

William Nathaniel Robertson Medal, 1947.—Advice was received from the Registrar of the University of Queensland that this medal was won by Alan Ferrers Knyvett.

Australasian Medical Publishing Company, Limited.

The Branch was represented by Dr. D. Gifford Croll at the meeting of directors held in March and by Dr. Felix Arden as proxy for Dr. Croll at the October meeting.

Medical Directory for Australia, 1948.—Arrangements are being made for the publication of a new edition in 1948, and it is hoped members will cooperate by furnishing the information required in accordance with the forms circulated to them.

Bancroft Oration.

The twenty-second oration in memory of Joseph Bancroft was delivered by Dr. F. W. Clements on Friday, June 6, 1947, in the lecture hall at the Medical School. Dr. Clements chose for his subject "Clinical Manifestations of Deficiency States in Infants and Children". There was a large attendance of members. An invitation was also extended to the members of the Professorial Board in the University of Queensland, the Council of the Royal Society of Queensland, and the nursing staff of the Maternal and Child Welfare Service. A vote of thanks was moved by Dr. Alan Lee, seconded by Dr. Felix Arden and carried by acclamation.

At the conclusion of the oration the President presented the Joseph Bancroft Memorial Medal to Dr. Clements.

Jackson Lecture.

Dr. I. M. Mackerras, the first director to be appointed to the Queensland Institute of Medical Research, delivered the Jackson Lecture for 1947. "Australia's Contribution to our Knowledge of Insect-Borne Disease" was the title and proved a most interesting subject to those present. There was an attendance of eighty members. This was the seventeenth lecture delivered in memory of the late Ernest Sandford Jackson.

Memorial Roll, Queensland Branch of the British Medical Association.

A suitably bound book and pages have been procured, and names of deceased members to be commemorated will be engraved therein giving particulars and a short outline of their medical career.

The object of the Memorial Roll is twofold—to commemorate the distinguished members of the Queensland Branch of the British Medical Association, and to provide a fund to be used for prizes and scholarships to be awarded in the Medical Faculty of the University of Queensland, or any such purpose for the benefit of the medical profession.

British Medical Agency of Queensland, Proprietary, Limited.

The Agency has carried on actively during the year, and considerable service has been rendered to metropolitan and country members, which we feel sure they appreciate.

Several Commonwealth and State wartime controls remain and the Association continues to utilize the services of the Agency staff in this regard, for example, motor-cars, petrol and surgery linen.

The estates of deceased members of the Branch have been assisted by the services of the Agency in respect to the sale of goodwill and other matters relative to the winding up of professional affairs.

The financial results of the year are reported to be satisfactory.

Staff.

A staff superannuation fund has been established by the Council during the year.

Social.

British Medical Association Annual Ball.—The annual ball, which was held at Lennon's Hotel on Wednesday, June 4, was a very successful function and was greatly enjoyed by all those present.

The committee responsible for the arrangements were Dr. Norman Sherwood, Dr. Harold R. Love and Dr. Arnold Robertson.

Council Dinners.—Prior to the Bancroft Oration on June 6, members of the Council entertained the orator, Dr. F. W. Clements, at a dinner party held at Lennon's Hotel. Other guests included the Director-General of Health (Dr. A. Fryberg), Professor Alex. Murphy, Professor Neville G. Sutton, Professor A. J. Canny, newly appointed members of the professorial staff in the Faculty of Medicine, Dr. I. M. Mackerras (first director of the Queensland Institute of Medical Research), Dr. S. F. McDonald (chairman), and Dr. Keith Moore (director of the Queensland Post-Graduate Medical Education Committee), Dr. P. A. Earnshaw (representing the State Committee of the Royal Australasian College of Physicians), and Dr. Derick Yeates (representing the State Committee of the Royal Australasian College of Surgeons).

The Council also gave a farewell dinner party at Lennon's Hotel to Dr. E. W. Casey prior to his departure for Melbourne.

Finance.

The balance sheet shows that the financial position of the Branch continues to be sound, notwithstanding that a considerable amount of expense has been entailed in renovations to the present building, and also in making provision for the future.

Conclusion.

This year has been an important one in the history of the Branch in that it has witnessed the passing of the *Pharmaceutical Benefits Act*, the revision of the Workers' Compensation Schedule and the preliminary conferences between the Minister for Health and the Federal Council of the British Medical Association on national medical service. Dr. Alan Lee and Dr. Harold Horn have been particularly busy on this and on Federal Council work and our Branch is grateful to them for the service they have so readily given.

A great loss has been sustained in the deaths of Dr. S. F. McDonald, Dr. G. P. Dixon and Dr. L. H. Foote. All of them served long terms as councillors and gave of their best for their fellow practitioners. Dr. McDonald and Dr. Dixon were past presidents of the Branch.

Acknowledgements must be made to all our office staff who under the direction and example of Mrs. Spooner have maintained their usual high standard of effficiency and helpfulness throughout the year.

(Sgd.) HORACE W. JOHNSON,
President.

BALANCE SHEET AND FINANCIAL STATEMENT.

The balance sheet and financial statement for the year ended November 15, 1947, were taken as read and adopted on the motion of Dr. Harold Horn, seconded by Dr. Norman Sherwood. Dr. Horn pointed out that during the year there had been heavy expenditure on repairs to B.M.A. House, expenditure in part payment of purchase of the property at the rear of B.M.A. House and payment of architect's fees in connexion with the proposed new building. In spite of this there was a small surplus.

AMENDMENT OF BY-LAW.

An amendment of By-Law 4, notice of which had been given on October 31, 1947, was moved by Dr. H. W. Horn, seconded by Dr. Arnold Robertson. By this amendment the subscription payable by junior members was raised from £2 12s. 6d. to £3 3s. *per annum*, the increase covering the increased Federal Council capitation payment.

MEMORIAL ROLL AND MEMORIAL PRIZE.

The President then read the list of members on the Memorial Roll and presented the B.M.A. Memorial Prize for Clinical Medicine, which was this year divided between Dr. J. K. Farnsworth and Dr. J. G. Watson.

ELECTION OF OFFICE-BEARERS.

The President announced the results of the election of office-bearers and members of the Council:

President: Dr. Norman Sherwood.

President-Elect: Dr. B. L. W. Clarke.

Past President: Dr. Horace Johnson.

Honorary Secretary: Dr. Arnold Robertson.

Councillors: Dr. J. R. Adam, Dr. R. V. Adamson, Dr. Felix Arden, Dr. T. V. Stubbs Brown, Dr. K. B. Fraser, Dr.

QUEENSLAND BRANCH OF THE BRITISH MEDICAL ASSOCIATION.
(INCORPORATED.)

Balance Sheet as at November 15, 1947.

LIABILITIES.	£ s. d.	£ s. d.
Fixed—		
Loan from Queensland Medical Land Investment Company, Limited		4,650 0 0
Current—		
Subscriptions for Remittance to:		
British Medical Association, London	26 2 3	
Australasian Medical Publishing Company, Limited, Sydney	42 6 3	
Subscriptions paid in advance	56 14 0	
		125 2 6
Association Funds—		
Accumulation Account	6,194 0 0	
Sinking Fund	416 5 2	
Reserve for Entertainments	32 15 3	
		6,643 0 5
		£11,418 2 11

ASSETS.	£ s. d.	£ s. d.
Fixed—at cost, *less* depreciation—		
Land and Buildings—British Medical Association House	2,338 0 2	
Deposit and Expenses—Bartley Street, Property—at cost	883 11 5	
Architects' Fees *re* plans prospective new building	300 0 0	
Library	150 0 0	
Typewriters, Book Cases, Balopticon and Furniture	73 8 3	
Bancroft Medals and Collar	4 10 0	
		3,749 9 10
Shares In—		
Queensland Medical Land Investment Company, Limited—at cost	2,975 0 0	
British Medical Agency of Queensland, Proprietary, Limited—at cost	258 0 0	
		3,233 0 0
Australasian Medical Publishing Company, Limited — 5% Debentures—at cost		55 0 0
		7,037 9 10
Current—		
Australian Consolidated Inscribed Stock—at cost	1,800 0 0	
English, Scottish and Australian Bank, Limited	2,091 15 1	
Sundry Debtors	62 0 0	
Electric Light Deposit	6 0 0	
Cash	4 12 10	
		3,964 7 11
Sinking Fund Investments—		
Australian Consolidated Inscribed Stock—at cost	368 3 3	
Commonwealth Savings Bank, Brisbane	48 1 11	
		416 5 2
		£11,418 2 11

We have compared the above Balance Sheet with the books, accounts and vouchers of the Queensland Branch of the British Medical Association (Incorporated) and have obtained all the information and explanations we have required. The Register of Members and other records which the Company is required to keep by the Companies Acts of 1941-1942, or by its Articles, have, in our opinion, been properly kept.

In our opinion, the Balance Sheet is properly drawn up to exhibit a true and correct view of the state of the Association's affairs as at November 15, 1947, according to the best of our information and the explanations given to us, and as shown by the books of the Association.

R. G. GROOM AND COMPANY,
Chartered Accountants (Aust.),
Auditors.

(Sgd.) H. W. HORN,
Honorary Treasurer.

Brisbane, November 18, 1947.

QUEENSLAND BRANCH OF THE BRITISH MEDICAL ASSOCIATION.
(INCORPORATED.)

Revenue Account for Twelve Months ended November 15, 1947.

EXPENDITURE.	£ s. d.	£ s. d.	REVENUE.	£ s. d.	£ s. d.
November 15, 1947.			November 15, 1947.		
To Branch Expenses	1,160 12 3		By Branch and Organization Fund Subscriptions		2,621 16 3
„ Library Expenditure	84 16 7		„ Interest—		
„ Depreciation of Office Equipment	7 13 2		Commonwealth Government Inscribed Stock	58 10 0	
		1,253 2 0	Australasian Medical Publishing Company, Limited, Debentures	2 15 0	
„ Provision for Staff Superannuation		400 0 0			61 5 0
„ Federal Council— Contribution to Organization Expenses		338 8 6	„ General— Sale of Nutrition Pamphlets and Lists of Members		10 15 8
„ British Medical Association House— Expenses:					
Repairs and Maintenance	715 16 7				
Rates, Land Tax and Insurance	151 16 6				
Cleaning	90 18 2				
Depreciation	44 2 1				
	1,002 13 4				
Less Rents	365 10 6				
		637 2 10			
„ Net Surplus for year— Transferred to Accumulation Account		65 3 7			
		£2,693 16 11			£2,693 16 11

QUEENSLAND BRANCH OF THE BRITISH MEDICAL ASSOCIATION.
(INCORPORATED.)

Statement of Receipts and Payments for Twelve Months ended November 15, 1947.

RECEIPTS.	£ s. d.	£ s. d.	PAYMENTS.	£ s. d.	£ s. d.
November 16, 1946.			November 15, 1947.		
To Funds at November 16, 1946—			By Subscriptions Remitted to—		
English, Scottish and Australian Bank, Limited—			British Medical Association, London	900 3 6	
Current Account	2,709 6 4		Australasian Medical Publishing Company, Limited, Sydney	740 0 0	
Cash in hand	10 6 2				1,640 3 6
		2,719 12 6	„ Federal Council— Contribution to Expenses		338 8 6
November 15, 1947.			„ British Medical Association House Expenses—		
To Subscriptions—			Repairs and Maintenance	715 16 7	
Organization Fund, Queensland Branch	1,487 10 9		Rates	134 17 0	
Queensland Branch Subscriptions	1,134 5 6		Cleaning	90 18 2	
For remittance to British Medical Association, London	889 6 3		State Land Tax and Insurance	16 19 6	
For remittance to THE MEDICAL JOURNAL OF AUSTRALIA, Sydney	756 1 3				958 11 3
In Advance	56 14 0		„ Branch Expenses—		
		4,323 17 9	Office Salaries, Audit and Honoraria	772 1 3	
„ General—			Printing and Stationery	130 3 10	
Rents	752 10 6		Postages and Duty Stamps	112 4 5	
Interest on Consolidated Inscribed Stock	58 10 0		Council and General Meeting Expenses, Bank Charges, Lighting, Sundries	100 4 8	
Sale of Nutrition Pamphlets and Sundries	10 15 8		Telephone Rental and Calls	31 10 6	
Australasian Medical Publishing Company, Limited—Interest on Debentures	2 15 0		Travelling Expenses	14 7 7	
		824 11 2			1,160 12 3
			„ General—		
			Costs and Deposits *re* Bartley Street Property	883 11 5	
			Transfer to Staff Superannuation	400 0 0	
			Architects' Fees *re* preparation plans for prospective new building	300 0 0	
			Library Expenditure and Sundries	90 6 7	
					1,673 18 0
			„ Funds at November 15, 1947—		
			English, Scottish and Australian Bank, Limited	2,091 15 1	
			Cash	4 12 10	
					2,096 7 11
		£7,868 1 5			£7,868 1 5

Milton Geaney, Dr. G. V. Hickey, Dr. Harold Horn, Dr. Alan Lee, Dr. Harold Love, Dr. F. W. R. Lukin, Dr. Athol Quale, Dr. R. G. Quinn, Dr. H. W. Steel.

ETHICS COMMITTEE.

Dr. J. G. Avery, Dr. D. Gifford Croll, Dr. L. J. J. Nye, Dr. J. J. Power, Dr. M. Graham Sutton, Dr. J. G. Wagner and Dr. L. P. Winterbotham were elected members of the Ethics Committee.

ELECTION OF AUDITORS.

Messrs. R. G. Groom and Company were reelected auditors for the ensuing year on the motion of Dr. H. W. Horn, seconded by Dr. F. W. R. Lukin.

INDUCTION OF PRESIDENT AND PRESIDENT'S ADDRESS.

Dr. Horace Johnson then inducted to the chair the incoming president, Dr. Norman Sherwood, who delivered his address (see page 185).

VOTES OF THANKS.

A vote of thanks was passed on the motion of Dr. B. L. W. Clarke to the retiring president and the outgoing councillors. The President from the chair moved a vote of thanks to the retiring honorary secretary, Dr. Harold Love, to the secretary, Miss Spooner, and to the office staff. The motion was carried by acclamation.

SCIENTIFIC.

A MEETING of the South Australian Branch of the British Medical Association was held at the Adelaide Children's Hospital on October 30, 1947, DR. A. BRITTEN JONES in the chair. The meeting took the form of a series of clinical demonstrations by members of the honorary medical staff of the hospital.

Pectus Excavatum.

DR. D. G. MCKAY presented a patient, aged four years, with a history of having had at birth a small depression at the lower end of the sternum. This had become progressively larger, producing a considerable degree of deformity. The lower portion of the sternum was much depressed, the apex of the depression being located approximately at the level of the junction of the xiphoid with the body of the sternum. The depth of the depression increased on inspiration. The lateral X-ray picture showed considerable depression of the lower end of the sternum, and, on measurement, there was a distance of less than two inches between the anterior border of the vertebral column and the xiphisternum. There was great displacement of the heart to the left, the apex beat being in the anterior axillary line. X-ray examination showed the heart to be of approximately normal size.

Dr. McKay said that A. Lincoln Brown, in an article published in *The Journal of Thoracic Surgery*, Volume IX, 1939-1940, page 164, described the condition and ascribed it as being primarily due to a tethering of the sternum by the sternal attachments of the diaphragm and by a structure which he termed the substernal ligament. Richard H. Sweet, on the other hand, in his article in *Annals of Surgery*, Volume CXIX, 1944, page 922, considered it to be primarily a skeletal deformity and described a modification of Brown's operation for the raising of the sternum by severing its connexion with the third, fourth, fifth, sixth and seventh ribs and performing a wedge osteotomy below the second costo-chondral junction. Portion of the costal cartilages of the divided ribs was removed and the sternum was elevated and reattached to the rib ends, with the complete reduction of the deformity.

Patent Ductus Arteriosus.

Dr. McKay then showed a girl in whom a patent *ductus arteriosus* had been tied in May, 1947. She was shown primarily to demonstrate the diminution in the size of the heart. Where previously there had existed a decided precordial bulge, it had been replaced by a depression.

DR. E. BRITTEN JONES, in discussing Dr. McKay's first patient, called attention to the effect produced by the condition on the heart.

DR. A. F. HOBBS said that in most of the operations for patent *ductus arteriosus* which he had recently seen in the United States of America, division of the duct had been performed. Claggett, of the Mayo Clinic, had employed ligation with silk without division, as he preferred to risk recanalization after ligation rather than death from hæmorrhage, which might be associated with division. At the University of Minnesota Hospital cases had been encountered of recanalization after ligation without division performed elsewhere. They therefore practised division of the duct. He had seen one case in which the forceps had slipped off the aortic side of the divided duct. Digital pressure had controlled the hæmorrhage while the aorta was freed sufficiently to enable it to be surrounded with two pieces of rubber tubing, which controlled the hæmorrhage while suture was performed. Shutting off of the aorta for twenty minutes had resulted in no ill effects in the lower part of the body.

Dr. Hobbs said that, in July, 1947, he had seen operations for the tetralogy of Fallot performed in Blalock's service at the Johns Hopkins Hospital. One such operation was being performed daily from a waiting list. At that time 420 patients had been operated on. The method used by Blalock consisted in anastomosis of the end of the divided right subclavian artery into the side of the right pulmonary artery. The mortality had been much lower since the subclavian artery had been used instead of the innominate. Blalock had devised a clamp, which was a modification of that of Potts, of Chicago, for clamping off part only of the lumen of the pulmonary artery in order to avoid complete temporary interruption of the blood supply to the lung. In a case in which the pulmonary artery was completely clamped for twenty minutes there was evidence of severe cardiac failure, but, with the use of an oxygen tent post-operatively, recovery occurred. In another case thoracotomy was performed, but the pulmonary artery was found dilated and tense, the reverse of the condition usually found in tetralogy. A needle in the artery connected with a manometer showed an increased instead of a reduced pressure. It was an example of the Einsenmenger type of tetralogy which was associated with a dilated pulmonary artery. The establishment of an artificial ductus was, of course, not indicated, so that the thorax was then closed. An interesting and unexplained fact was that in the Eisenmenger type of tetralogy the carbon dioxide content of the blood was diminished by exercise.

Dr. Hobbs went on to say that he had seen Gross, of Boston, perform his twenty-first operation for excision of a segment with end-to-end anastomosis for coarctation of the aorta. There had been two deaths, one of them in the first patient operated upon. Death in that case was due to heart failure resulting from the sudden rush of blood to the lower part of the body following release of the last clamp from the aorta. In subsequent cases that had been prevented by gradual release of the clamp over a period of about five minutes, rapid transfusion of about 200 millilitres of blood and the adoption of the Trendelenburg position at that stage.

Polycystic Kidneys.

DR. C. O. F. RIEGER showed a retrograde pyelogram of a girl, aged eleven and a half years. She had been referred to the hospital on account of pain in the left loin radiating forward to the lumbar region. The pain was of short duration and intense and sharp in character. During the previous two years she had been treated for three attacks of pyelitis. Her father, paternal grandmother, two great aunts and six of their descendants had died of polycystic disease of the kidneys. The father had died recently at the age of fifty years after an illness of one week. The grandmother died at the age of sixty years and the other relatives at ages between forty and fifty years. An excretion pyelogram in October, 1946, had revealed no abnormality. On examination at the time of admission to hospital, apart from some tenderness on palpation in the left loin, there was no abnormality to be found. During her two days in hospital she had no pain, there was no polyuria, and an examination of her urine showed no cells and it was sterile on incubation. A retrograde pyelogram was obtained on October 24. There was no evidence of abnormality in the bladder and both ureters were easily catheterized. The radiologist reported as follows: "Both kidneys are apparently enlarged with calyces somewhat elongated with a bifid condition of the pelvis on each side, with a large upper calyx especially on the right side. The appearance is not typical of polycystic disease, but on the left side the middle calyces appear to be somewhat compressed and less well filled than the remaining ones. These appearances could be caused by pressure from a cyst."

Dr. Rieger said that, with the family history, attacks of left renal pain and the abnormal radiological finding, it was considered that the patient had polycystic kidneys. The hospital had no record of any other such case, but three autopsies on infants of one family who died of anuria had revealed polycystic disease. The patient was shown for the rarity of the condition and for opinions regarding the advisability of surgical intervention.

DR. G. H. BURNELL said that he did not consider that the radiological evidence presented by Dr. Rieger was sufficient to warrant a diagnosis of polycystic disease, in spite of the very significant family history; the child might still have the disease, but Dr. Burnell would not be prepared to make the diagnosis on the radiographs alone. With regard to the value of Rovsing's operation in the treatment of polycystic disease, he considered that whether to use it or not should be decided on the results of renal function tests; when those were found to be reasonably good, he thought that it was logical and worth while, but he considered it had been brought into disrepute through having been performed on patients in whom there was practically no functioning renal tissue left to save. He advised Dr. Rieger to carry out the renal function tests and then, if he was still satisfied that it was a case of polycystic disease, and if the function tests were good, to proceed with the operation.

(To be continued.)

NOTICE.

THE General Secretary of the Federal Council of the British Medical Association in Australia has announced that the following medical practitioner has been released from full-time duty with His Majesty's Forces and has resumed civil practice as from the date mentioned:

Dr. B. A. Curtin, 625, New South Head Road, Rose Bay (January 1, 1948).

Medical Societies.

MEDICAL SCIENCES CLUB OF SOUTH AUSTRALIA.

A MEETING of the Medical Sciences Club of South Australia was held on August 1, 1947.

Some Aspects of Endocrine Control of Carbohydrate Metabolism.

MR. I. G. JARRETT presented a discussion on carbohydrate metabolism with particular stress on enzymatic and hormonal control of one or other phase of the metabolism of glucose and its various intermediaries. He stated that the glucose in the body could originate from any one of the following sources: intestinal absorption of products of carbohydrate digestion; glycogenolysis, that is, from glycogen as in the phosphatase reaction in the liver; and gluconeogenesis, that is, from all non-carbohydrate sources, particularly the glucogenic amino acids. Evidence was presented to show that in the body under normal physiological conditions the former source usually accounted for two-thirds of the total glucose, the latter for about one-third; only about 3% was provided by conversion from glycogen.

The oxidation of glucose was then discussed. The complex series of enzyme reactions and the importance of phosphate bonds in the series of reversible reactions involved in the conversion of glycogen or glucose to pyruvic acid and the subsequent oxidation of that product were indicated. Pyruvic acid assumed a position of some importance as a major product in the "metabolic pool". It could be considered as the common product towards which the metabolism of carbohydrate, protein and fat converged. The level of sugar in the blood represented the resultant of oxidation, storage and excretion on the one hand and formation and absorption on the other. A delicate balance of various mechanisms was necessary to maintain the necessary homeostasis, and it was there that the importance of the various hormones was realized. Some aspects of the study of the pancreatic islet tissue in connexion with insulin production were briefly surveyed as part of a short summary of *diabetes mellitus*. The implication of the anterior lobe of the pituitary in the diabetic condition was stressed; the work of Houssay, who produced alleviation of the diabetic condition in dogs by removal of the pituitary, was used to illustrate the point.

The problem of the antagonism between insulin and anterior pituitary lobe extract had been elucidated in the previous year or so by the workers in Cori's laboratory. They had realized that the oxidation of glucose could not proceed in the absence of the preliminary phosphorylation of glucose to glucose-6-phosphate under the action of hexokinase. They demonstrated an elaborate hormonal control of hexokinase activity. The anterior pituitary lobe extract acted as a specific inhibitor of hexokinase, and if in excess retarded the phosphorylation of glucose to glucose-6-phosphate. Insulin abolished that inhibition and yet had no specific effect on hexokinase itself. Those facts provided an explanation for many of the phenomena associated with diabetes and carbohydrate metabolism. Excess of insulin would overcome the physiological inhibition of the hexokinase reaction caused by anterior pituitary lobe extract. Phosphorylation of glucose would then proceed with undue rapidity, the blood sugar level would fall and all the reactions of glucose-6-phosphate would be enhanced. Conversely, lack of insulin was reflected in an impairment of hexokinase activity, utilization of glucose was slowed while production from all its normal sources was maintained, and so the blood sugar level rose; and if glucose was not available for energy and other substances were used, then there was a fall in liver glycogen content, ketosis and negative nitrogen balance.

The paper was concluded with a brief account of some studies of carbohydrate metabolism of the sheep being conducted at the Nutrition Laboratory. The peculiar metabolism of the ruminant was discussed in the light of some of the recent work as outlined in the earlier part of the paper.

Post-Graduate Work.

THE POST-GRADUATE COMMITTEE IN MEDICINE IN THE UNIVERSITY OF SYDNEY.

TRAINING IN OPHTHALMOLOGY.

THE Post-Graduate Committee in Medicine in the University of Sydney announces that the eye department, Sydney Hospital, has made available four positions for full-time external post-graduate students in ophthalmology. The appointments will be for twelve months from Monday, April 5, 1948, and preference will be given to candidates for the Diploma in Ophthalmology of the University of Sydney. A fee of £5 5s. per term will be charged. Applications should be lodged before March 10, 1948, with the Honorary Director, the Post-Graduate Committee in Medicine, 131, Macquarie Street, Sydney, from whom application forms may be obtained.

COURSE IN PÆDIATRICS.

The pædiatric section of the refresher course for general practitioners will be conducted at the Royal Alexandra Hospital for Children for two weeks beginning February 23, 1948. Application to attend should be made at the office of the committee, 131, Macquarie Street, Sydney. Telephones: BW 7483, B 4606.

THE MELBOURNE PERMANENT POST-GRADUATE COMMITTEE.

Programme for March, 1948.

Courses for Higher Degrees and Diplomas.

CLASSES at the University of Melbourne suitable for Part I of the M.D., M.S., D.O., D.L.O., D.G.O., D.D.R., D.T.R.E., D.P.M. and D.A., and for Part II of the M.S., D.D.R. and D.T.R.E. will commence on March 17 and continue on Monday, Wednesday and Thursday afternoons till July or August. These classes will be held only if there are at least five enrolments for the degree or diploma concerned. It should be noted that psychology lectures for Part I of the D.P.M. are now arranged by the psychology department of the University of Melbourne, and not by the Melbourne Permanent Post-Graduate Committee. The fee for any of the courses arranged by the committee (pathology, anatomy, physiology and physics lectures and classes in practical pathology) is £31 10s. Subjects may be taken separately at £15 15s. each.

Course in Thoracic Diseases.

Under the direction of Dr. Clive Fitts, clinical demonstrations suitable for the M.D. Part II and the M.R.A.C.P. will be conducted at the Royal Melbourne Hospital and the Austin Hospital at 2 p.m. on Tuesday and Thursday afternoons from March 16 to April 8. The fee for the course is £3 3s. Fuller details will be available later.

Refresher Course at the Geelong Hospital.

A refresher course will be conducted at the Geelong Hospital on one Wednesday night per month at 8.30 p.m. as follows: March 10, Dr. E. Graeme Robertson, "Cerebral Vascular Lesions"; April 14, Dr. A. J. M. Sinclair, "Signposts in Mental and Nervous Disorders"; May 12, Dr. H. Williams, "Recent Advances in Diseases of Children"; June 9, Dr. G. Swinburne, "The Acute Ear"; July 14, Dr. John Horan, "Indigestion"; August 11, Dr. G. Newman Morris, "Inguinal Hernia"; September 8, Dr. R. M. Rome, "Maternal Care in the Post-Natal Period"; October 13, Dr. H. L. McLorinan, "Recent Advances in Infectious Diseases". The fee for this course is £4 4s., and Dr. N. W. Morris, "Belleville", Ryrie Street, Geelong, will make enrolments.

Enrolments.

Applications for all courses other than country coures should be made to the Secretary of the Committee, College of Surgeons, Spring Street, C.1 (JM 1547-1548), and should

be accompanied by the fee, or by intimation of entitlement under the Commonwealth Reconstruction Training Scheme.

Course at Ballarat.

The course which was to have been held at Ballarat on February 21 and 22 has been cancelled.

Naval, Military and Air Force.

APPOINTMENTS.

THE undermentioned appointments, changes *et cetera* have been promulgated in the *Commonwealth of Australia Gazette*, Number 22, of January 29, 1948.

CITIZEN NAVAL FORCES OF THE COMMONWEALTH.

Royal Australian Naval Volunteer Reserve.

Appointment.—Percy Maxwell Brett is appointed Surgeon Lieutenant with seniority in rank of 2nd August, 1943, dated 30th November, 1946.

AUSTRALIAN MILITARY FORCES.

Australian Army Medical Corps.

WX10 Lieutenant-Colonel (Temporary Colonel) J. H. Stubbe, E.D., relinquishes the appointment of Assistant Director of Medical Services, Headquarters, British Commonwealth Occupation Forces, and is appointed Deputy Director of Medical Services, Headquarters, British Commonwealth Occupation Forces, 14th October, 1947.

VX700027 Honorary Captain J. D. Begg is appointed from the Reserve of Officers (Australian Army Medical Corps) (3rd Military District) and to be Captain, 13th November, 1947.

To be Temporary Lieutenant-Colonel, 13th November, 1947.—VX700027 Captain J. D. Begg.

To be Major, 21st October, 1947.—TX2140 Captain (Temporary Lieutenant-Colonel) J. W. H. Merry, and retains the temporary rank of Lieutenant-Colonel.

To be Temporary Majors.—Captains NX191425 D. D. Bathgate, 22nd August, 1947, and NX207584 R. J. M. Dunlop, 10th September, 1947.

The following officers are appointed from the Reserve of Officers (Australian Army Medical Corps) and to be Captains: Honorary Captains SX700020 M. de L. Faunce (4th Military District), 28th October, 1947, and VX700028 I. A. McDonald (3rd Military District) and VX700029 B. Goldman (3rd Military District), 1st December, 1947.

Reserve of Officers.

Australian Army Medical Corps.

The following officers are transferred to the Reserve of Officers of the Military Districts shown on the dates indicated. Officers holding temporary rank relinquish such temporary rank with effect from the date of transfer to the Reserve of Officers:

TX2140 Major (Temporary Lieutenant-Colonel) J. W. H. Merry (6th Military District), 22nd October, 1947, and NX204413 Captain (Temporary Major) P. G. Middleton (2nd Military District), 25th November, 1947.

No. 110 (Perth) Military Hospital.—VX96334 Captain R. D. Watson (5th Military District), 21st June, 1947 (in lieu of the notification respecting this officer which appeared in Executive Minute No. 155 of 1947, promulgated in *Commonwealth Gazette* No. 218 of 1947).

16th Camp Hospital.—NX207586 Captain H. Gayt (2nd Military District), 4th December, 1947.

20th Camp Hospital.—VX96338 Captain M. J. L. McGrath (3rd Military District), 2nd July, 1947 (in lieu of the notification respecting this officer which appeared in Executive Minute No. 159 of 1947, promulgated in *Commonwealth Gazette* No. 222 of 1947).

Reserve Citizen Military Forces.

Australian Army Medical Corps.

1st Military District.—Honorary Captain W. Yum is retired, 7th November, 1947.

2nd Military District.—Honorary Captain A. I. Lane is retired, 5th December, 1947.

3rd Military District.—Captain C. L. Gough (*née* Lee) is retired, 14th November, 1947.

Special Correspondence.

CANADA LETTER.

FROM OUR SPECIAL CORRESPONDENT.

YOUR correspondent was privileged during December to hear the two-day sessions of the American Association for Research in Nervous and Mental Diseases in New York City. The subject under discussion was "The Frontal Lobes". Over seven hundred physicians from all parts of the continent and many from overseas crowded the meetings, where thirty papers were read under the chairmanship of Dr. John Fulton.

The first session included nine papers on the "Biology of the Frontal Lobes". These ranged from cyto-architectonics by Percival Bailey and his Chicago group to a study of thalamic projections to the frontal lobe based upon post-mortem studies by Walter Freeman. The Hopkins group under Dr. C. N. Woolsey reported on the activation of the cerebral cortex caused by antidromic volleys in the pyramidal tract.

The next session was given over to experimental studies. Professor Denny-Brown, of Boston, and Dr. E. H. Botterell, of Toronto, reported on partial lesions of area 4. The human observations by T. Rasmussen and Wilder Penfield, of Montreal, covered the movement of head and eyes upon stimulation of the frontal cortex at operations. Professor Bard, of Hopkins, reviewed his work on forebrain mechanisms in the expression of anger. A most stimulating paper was read by the youthful Dr. Robert Livingston, of New Haven, on the activation of the "shunt" mechanism of the renal circulation upon stimulation of the orbital surface of the frontal lobe. This paper was commented upon by Dr. Joseph Trueta, whose work at Oxford on this subject has recently attracted a great deal of attention in America in connexion with hypertension.

The following day clinical studies were presented and accordingly the temperature of the discussion rose considerably. Underlying all the discussions there was a feeling that so-called objective measurements of deficit or improvement following frontal lobotomy might be reflecting only part of the picture, and some thought a small part. Halstead, of Chicago, held that a concept of "biological intelligence" was required if lobotomy patients were to be rescued from the "gadgeteers" and "I.Q. men". This was described as being possibly foreign to routine psychological testers, but was the sort of thing which any good practitioner could recognize at the bedside.

Professor Penfield and Professor Ewen Cameron, of Montreal, reported on their cooperative studies before and after lobotomy. The impression was left that there had been little gained in some cases, some improvement in others, but that post-operative epilepsy was a complication seriously to be considered.

One of the finest papers of the symposium was given by Dr. Murray Falconer, of New Zealand, who reported on his experience with frontal lobotomy for intractable pain. His conclusion that this was "an operation in desperation" brought prolonged applause from the large audience, and it seemed to be the turning of the tide. An air of conservatism is likely to characterize American thinking on the subject of frontal lobotomies for some time to come. Obviously better methods of selection are needed. Methods of follow-up study, as described by Dr. Gosta Rylander, of Stockholm, greatly impressed the meeting. His intensive work on a few patients has indeed been worth while.

Correspondence.

A MODIFIED DRINKER RESPIRATOR FOR NEWBORN INFANTS.

SIR: Dr. Hytton is to be congratulated on the excellent respirator for newborn infants which he describes in your journal of December 27, 1947.

It is satisfactory to know that this method of resuscitation of the newborn is being recognized in a Sydney hospital, and it will, we hope, be used in other maternity hospitals in New South Wales in the near future.

Dr. Hytton, however, cannot be familiar with hospitals in some other States and certainly could not have read a description of an easily constructed and, I venture to claim, just as efficient respirator which was described in your journal of June 24, 1944, page 580.

This respirator has been in constant use in the delivery wards of the Queen Victoria Hospital, Launceston, for about eight years, and has not only saved many infant lives, but has simplified the treatment of apnœic, slow to breathe newborn infants. After the article referred to was published, letters from obstetricians in various States were received and respirators of somewhat similar pattern were made for some other hospitals.

The difficulty in obtaining machinery during the war years held up further construction in this State, but Mr. E. Waterworth has almost completed an even simpler model for the Royal Hospital, Hobart, which will have improvements based on our eight years' use in practice. Similar models will be made, and it is hoped that all maternity hospitals in the State will have one of these respirators in the delivery ward and help to reduce the neonatal mortality. Mr. Waterworth states that the cost of the machine will be about £50.

Had Dr. Hytton read the article, I feel sure he would have had the courtesy to acknowledge it and would not have made the sweeping statement that "in this country its practical use is almost unknown". There would have been no occasion for this comment had his statement read "in Sydney" instead of "in this country".

Yours, etc.,

37, Brisbane Street, Launceston, Tasmania.
January 20, 1948.

W. KEVERALL McINTYRE.

NEW TREATMENT OF RHEUMATOID ARTHRITIS.

SIR: My reaction to the article by Imre Barsi (*British Medical Journal*, August 16, 1947, page 252) was different from the reaction of Dr. Haslett Frazer (THE MEDICAL JOURNAL OF AUSTRALIA, January 10, 1948, page 54). Barsi has provided us with an interesting observation—that rheumatoid arthritis in 6 out of 28 cases improved very much after transfusion with the blood of pregnant women. But there is no basis for his claim—as a "fact"—that "there are some cases of rheumatoid arthritis which can be promptly and permanently cured by the unknown material circulating in the blood of pregnant women". Dr. Barsi's new method is based on a myth—the myth that rheumatoid arthritis is improved by pregnancy. Doubtless many cases improve during pregnancy, because, as Barsi himself admits, in any stated period of time about 70% are improved with or without treatment. In the natural course of the disease retrogressions are rapid while improvements are slow; most cases improve for 70% of the time and retrogress during 30% of the time. For every two or three arthritic patients claiming improvement during pregnancy, one can be found who got worse. At present I have two women under my care whose rheumatoid arthritis commenced during pregnancy.

Apart from this fundamental defect, Dr. Barsi has not provided us with evidence sufficient to convince us that the improvement was due to the transfusion. But supposing even that we grant him this point—the improvement was due to the transfusion—we need further information before we can agree with his proposition as quoted. Thus: (i) Quite indispensable is a control series of transfusions with the blood of non-pregnant persons. Without this we cannot assume that the gestational hormones had any share in the result. (ii) In at least two of Dr. Barsi's six cases rigors occurred. Rigors, it is generally believed, are due to the introduction of foreign proteins through errors in transfusion technique. For many years the adherents of "protein shock" therapy have been claiming good results in arthritis. We are entitled to ask, therefore, in how many of Dr. Barsi's other cases—the four successful ones and the 22 whose results were not significant—were rigors induced. Supposing that we adopt this strange treatment; even on Dr. Barsi's figures we cannot expect significant results more often than one in five cases. We are being asked, therefore, to commit a series of unjustifiable assaults on pregnant women—whose need for the blood cannot be denied—with possible benefit to one in every five arthritics after an unstated number of transfusions, repeated at unstated intervals. (In Case I "several transfusions were given during the following years".)

Let us apply the proper canons of criticism before any of us are deluded into the trial of a method that, like so many "cures" for rheumatoid arthritis, cannot be proven or disproven. But this method is more pernicious than all others in that not only will it add to the physical torments of our rheumatic patients, but it will necessitate also the exploitation of expectant mothers and unborn babes.

Yours, etc.,

"Chelmer", 417, St. Kilda Road, Melbourne, S.C.2.
January 23, 1948.

MICHAEL KELLY.

Medical Prizes.

PRIZE OF THE INTERNATIONAL ASSOCIATION FOR THE PREVENTION OF BLINDNESS.

A HONORARIUM of 1000 dollars to promote research work on ophthalmology is offered through the American members of the staff of the International Association for the Prevention of Blindness, the jury to consist of the Executive Committee together with the President and the officers of the Association.

The award will be made in connexion with the sixteenth *Concilium Ophthalmologicum*. Papers may be presented by any responsible research worker. The subject is to be simple non-inflammatory glaucoma and may include anything definitely relative to the question. The matter must be new and of such value, in the judgement of the jury, as to merit this recognition. Papers may be written in English or French; they should be unpublished or may include those published between this date and October 15, 1949. They should be in the hands of the secretary of the International Association for the Prevention of Blindness, 66, Boulevard St.-Michel, Paris, not later than October 15, 1949. The decision of the jury will be final.

Obituary.

JOHN DANIEL HERLIHY.

WE are indebted to Dr. John Kennedy for the following appreciation of the late Dr. John Daniel Herlihy.

With the death of Dr. John D. Herlihy, of Leichhardt, Sydney, which took place with tragic suddenness a few months ago, an illustrious name has been removed from the medical register.

John Daniel Herlihy was the son of Mr. John Herlihy, a noted educationalist. He graduated with honours at Sydney University Medical School in 1911, and after graduation was appointed resident medical officer at Sydney Hospital. He later acted as *locum tenens* for Dr. Langton, of Cleveland Street, and I have heard him relate many interesting anecdotes. Later he became junior partner to Dr. T. W. Lipscomb, recently deceased, in a particularly busy practice at Leichhardt. He was appointed junior honorary physician at Lewisham General Hospital, where he ultimately became its senior honorary physician, a position he held immediately up to the time of his death. It is in connexion with his work at Lewisham Hospital that he has left a lasting monument to his memory.

To all those closely connected with his work as senior honorary physician he was held in the highest regard as a particularly sound physician who sought not the limelight, but who had acquired, as the result of his many years of general practice, a sympathetic understanding of human nature. The kindliness of his manner and his willingness to help his younger colleagues, combined with extreme courteousness under all conditions, were his most outstanding characteristics. Dr. Herlihy was the first physician appointed to take charge of the Diabetic Clinic when this was first instituted at Lewisham Hospital.

He was always well read in current medical literature and was particularly interested in the treatment of gastric and duodenal ulcer. As a characteristic of his devotion to duty and his disinclination to be a cause of anxiety to others, it was not even known to his most intimate friends that as long as four years previously he had received a warning of the impending disaster that would eventually overtake him. After Dr. Lipscomb left general practice "John D.", as he was familiarly called by his friends and colleagues, was joined in partnership by his brother, Fred

Herlihy, whose untimely death some few years ago left a mark of sorrow which could not easily be effaced.

John D. Herlihy is survived by a devoted wife, his daughter Helen and son John, who is following in his father's footsteps.

AUBREY PHILLIP GUNNING.

WE regret to announce the death of Dr. Aubrey Phillip Gunning, which occurred on February 4, 1948, at Chatswood, New South Wales.

Nominations and Elections.

THE undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

Kennedy, William Scott, M.B., B.S., 1942 (Univ. Sydney), 18, Bower Street, Manly.

Middleton, Archie Wilmot, M.B., B.S., 1943 (Univ. Sydney), 288, Great North Road, Abbotsford.

Johnston, May Grace, M.B., B.S., 1946 (Univ. Sydney), 106, Bay Road, Waverton.

Courtenay, Bruce Sturgess, provisional registration, 1947 (Univ. Sydney), Ryde District Soldiers' Memorial Hospital, Eastwood.

Hamilton, Betty, provisional registration, 1947 (Univ. Sydney), 82, Consett Street, Concord West.

Backhouse, Juliet Nancy, provisional registration, 1947 (Univ. Sydney), 3, Hampden Flats, 2, Eaton Street, North Sydney.

THE FEDERAL MEDICAL WAR RELIEF FUND.

THE following contributions to the Federal Medical War Relief Fund have been received:

New South Wales.

W. H. Neild, £21.
N. D. Barton, £2.
Alexa Maclean-Lilley (second contribution), £1 1s.
Total: £24 1s.
Grand total: £19,643 15s. 6d.

Medical Appointments.

Dr. N. S. Wallman has been appointed quarantine officer, Port Victoria, South Australia, in pursuance to the provisions of the *Quarantine Act*, 1908-1947.

Dr. R. T. Allan has been appointed a member of the Indeterminate Sentences Board, in pursuance to the provisions of Section 531 of the *Crimes Act*, 1928, of Victoria.

Dr. E. R. G. Sheil has been appointed a member of the Free Library Service Board, in pursuance to the provisions of the *Free Library Services Board Act*, 1946, of Victoria.

Dr. H. C. Murphy has been appointed director, Maternal and Child Welfare Department of Health and Home Affairs, in pursuance to the provisions of *The Public Service Acts*, 1922 *to* 1945, of Queensland.

Dr. E. R. L. Williams has been appointed government medical officer at Ayr, in pursuance to the provisions of *The Health Acts*, 1937 *to* 1946, of Queensland.

Books Received.

"Clinical Studies in Psychopathology: A Contribution to the Ætiology of Neurotic Illness", by Henry V. Dicks, M.A., M.D. (Cantab.), F.R.C.P. (London); Second Edition; 1947. London: Edward Arnold and Company. 8½" x 5½", pp. 238. Price: 15s.

"The 1947 Year Book of General Medicine", edited by George F. Dick, M.D., J. Burns Amberson, M.D., George R. Minot, M.D., S.D., F.R.C.P. (Edinburgh and London), William B. Castle, M.D., S.M., M.D. (Hon.), Utrecht, William D. Stroud, M.D., and George B. Eusterman, M.D.; 1947. Chicago: The Year Book Publishers Incorporated. 7" x 4½", pp. 784, with many illustrations. Price: $3.75.

"Synopsis of Allergy", by Harry L. Alexander, A.B., M.D.; Second Edition; 1947. St. Louis: The C. V. Mosby Company. Melbourne: W. Ramsay (Surgical) Proprietary, Limited. 7¾" x 4¾", pp. 256, with illustrations. Price: 30s.

"Collected Papers of the Mayo Clinic and the Mayo Foundation", edited by Richard M. Hewitt, B.A., M.A., M.D., A. B. Nevling, M.D., John R. Miner, B.A., Sc.D., James R. Eckman, A.B., M.D., Ph.D., M. Katherine Smith, B.A., Carl M. Gambill, A.B., M.D., M.P.H., and Elizabeth L. Skafte, B.A.; Volume XXXVIII; 1947. Philadelphia and London: W. B. Saunders Company. Melbourne: W. Ramsay (Surgical) Proprietary, Limited. 9" x 6", pp. 926, with many illustrations. Price: 87s. 6d.

Diary for the Month.

FEB. 16.—Victorian Branch, B.M.A.: Finance, House and Library Subcommittee.
FEB. 17.—New South Wales Branch, B.M.A.: Medical Politics Committee.
FEB. 19.—Victorian Branch, B.M.A.: Executive Meeting.
FEB. 21.—Tasmanian Branch, B.M.A.: Annual Meeting and Dinner.
FEB. 24.—New South Wales Branch, B.M.A.: Ethics Committee.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Honorary Secretary, 135, Macquarie Street, Sydney): Australian Natives' Association; Ashfield and District United Friendly Societies' Dispensary; Balmain United Friendly Societies' Dispensary; Leichhardt and Petersham United Friendly Societies' Dispensary; Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney; North Sydney Friendly Societies' Dispensary Limited; People's Prudential Assurance Company Limited; Phœnix Mutual Provident Society.

Victorian Branch (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federated Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

Queensland Branch (Honorary Secretary, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute; Brisbane City Council (Medical Officer of Health). Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 178, North Terrace, Adelaide): All Lodge appointments in South Australia; all Contract Practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 205, Saint George's Terrace, Perth): Wiluna Hospital; all Contract Practice appointments in Western Australia. All government appointments with the exception of those of the Department of Public Health.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2.)

Members and subscribers are requested to notify the Manager, THE MEDICAL JOURNAL OF AUSTRALIA, Seamer Street, Glebe, New South Wales, without delay, of any irregularity in the delivery of this journal. The management cannot accept any responsibility or recognize any claim arising out of non-receipt of journals unless such notification is received within one month.

SUBSCRIPTION RATES.—Medical students and others not receiving THE MEDICAL JOURNAL OF AUSTRALIA in virtue of membership of the Branches of the British Medical Association in the Commonwealth can become subscribers to the journal by applying to the Manager or through the usual agents and booksellers. Subscriptions can commence at the beginning of any quarter and are renewable on December 31. The rates are £2 for Australia and £2 5s. abroad per annum payable in advance.